

THE FEDERAL DREDGE PERMITTING PROCESS AND  
ITS EFFECT ON PORTS OF THE GULF COAST  
REGION

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The Federal Dredge Permitting Proce... THE

SUBCOMMITTEE ON OCEANOGRAPHY, GULF OF  
MEXICO, AND THE OUTER CONTINENTAL SHELF  
OF THE

COMMITTEE ON  
MERCHANT MARINE AND FISHERIES  
HOUSE OF REPRESENTATIVES

ONE HUNDRED THIRD CONGRESS

FIRST SESSION

ON

THE EFFECTIVENESS OF THE FEDERAL DREDGE PER-  
MITTING PROCESS ON MAINTENANCE AND IMPROVE-  
MENTS TO PORTS OF THE GULF REGION

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DECEMBER 13, 1993—HOUSTON, TEXAS

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Serial No. 103-78

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Printed for the use of the Committee on Merchant Marine and Fisheries



*Printed for the use of the Committee on Merchant Marine and Fisheries*

*U.S. GOVERNMENT PRINTING OFFICE*

*1994*

76-254

WASHINGTON : 1994

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For sale by the U.S. Government Printing Office  
Superintendent of Documents, Congressional Sales Office, Washington, DC 20402  
ISBN 0-16-043671-0



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# THE FEDERAL DREDGE PERMITTING PROCESS AND ITS EFFECT ON PORTS OF THE GULF COAST REGION

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MONDAY, DECEMBER 13, 1993

HOUSE OF REPRESENTATIVES, COMMITTEE ON MERCHANT  
MARINE AND FISHERIES, SUBCOMMITTEE ON OCEANOGRAPHY,  
GULF OF MEXICO, AND THE OUTER CONTINENTAL  
SHELF

*Houston, TX.*

The Subcommittee met, pursuant to notice, at 9:00 a.m., at the Auditorium, Galena Park High School, 1000 Keene, Galena Park, Texas, the Honorable Solomon P. Ortiz (Chairman) presiding.

Present: Representatives Ortiz, Green, and Laughlin.

Staff present: Sheila McCready, Staff Director; Robert Wharton, Senior Professional Staff; John Aguirre, Clerk; Terry Schaff and Chris Mann, Professional Staff; Lisa Pittman, Minority Professional Staff; and Richard Russell, Minority Counsel.

## OPENING STATEMENT OF THE HONORABLE SOLOMON P. ORTIZ, A U.S. REPRESENTATIVE FROM TEXAS, AND CHAIRMAN, SUB- COMMITTEE ON OCEANOGRAPHY, GULF OF MEXICO, AND THE OUTER CONTINENTAL SHELF

Mr. ORTIZ. Good morning. I would like to welcome all of you here today on behalf of the Subcommittee on Oceanography, Gulf of Mexico, and the Outer Continental Shelf.

Today the Subcommittee meets to examine how the Federal dredge permitting process is affecting the ports of the Gulf Coast region and, in particular, the Port of Houston, in their ability to carry out the maintenance and improvements necessary to keep them operating effectively.

Ninety-nine percent of U.S. international trade—nearly one billion tons of cargo annually, worth nearly \$500 billion—moves in and out of U.S. deep draft ports. The Gulf Coast is home to 11 of the top 20 U.S. ports in terms of total tonnage, with the Port of Houston leading the way. In economic terms, Gulf ports contribute over \$40 billion of the \$70 billion that U.S. ports generate annually for our national economy, providing half-a-million jobs in the process. With the approval of the North American Free Trade Agreement, all of these numbers can certainly be expected to rise.

As the largest Gulf port—in fact, the largest in the country in terms of foreign tonnage—the Port of Houston and this community will be directly impacted by Federal policy regarding the management and disposal of dredged material.

This Subcommittee held a hearing in Washington last spring regarding a pending dredge permit that was being sought by the Port of New York and New Jersey. Because consensus could not be reached about the impact of approving the permit on marine resources, the permit was withheld for over three years, while access to the port became obstructed and the cargo had to be diverted to other ports.

We come here today to examine the proposed projects of a different port, with a different set of circumstances, but the issues remain the same: How can the Federal Government foster a national policy that will allow ports to conduct channel and berth improvements and maintenance as needed in a timely and cost-effective manner while ensuring the protection of human health and marine life?

The Subcommittee hopes to hear more today about the adequacy of upland and ocean disposal sites to meet the dredging needs of the ports of Texas and the Gulf Coast. In addition, we will hear about the beneficial uses of dredged material and the benefits and cost associated with such uses and how port access in the Gulf of Mexico may be impacted in the future by changes in Federal and State laws.

I want to thank the Vice-Chairman of the Subcommittee, my good friend, Representative Gene Green, for inviting the Subcommittee to his district to hold this hearing this morning. Gene has made a significant contribution to the work of the Subcommittee in this Congress, and I am glad that we could come this morning to hear about the situation here at the Port of Houston. The testimony presented today will be very important as we continue our work to develop a national policy for the safe and effective management and disposal of dredged material.

I also want to thank and welcome my good friend, Greg Laughlin, another fellow Texan and a good friend, and of course, we feel so lucky to have, at least, on my Subcommittee two Texans and, of course, my good friend, Jack Fields, who happens to be the ranking member of the Full Committee. I know that Greg has a tremendous interest in the testimony and the interests, as well as Gene and I, that we will be addressing today. I am proud to say that the Houston area has a lot of wisdom in the selection of their Congressmen, in selecting Gene and Greg Laughlin and Jack Fields to represent your interests in Washington, D.C.

I look forward to hearing from the distinguished group of witnesses that we have assembled before us today, and I thank you all for being with us and making time in your schedule.

Mr. ORTIZ. Now I would like to welcome the Vice-Chairman of the Subcommittee, Mr. Green, and I yield to Mr. Green for such time that he needs to make an opening statement.

#### STATEMENT OF THE HONORABLE GENE GREEN, A U.S. REPRESENTATIVE FROM TEXAS

Mr. GREEN. Thank you, Mr. Chairman.

I will be as brief as possible, but I want to thank the Chairman and welcome everyone to Galena Park High School and Galena Park School District plus the 29th Congressional District.

I would like to welcome the Chair and also my good friend, Congressman Greg Laughlin, to Houston. I appreciate Chairman Ortiz holding this field hearing today, and I want to thank the Port of Houston and the Committee staff for their assistance throughout the preparations for this hearing.

I would also like to thank Galena Park High School individually and the school district. We have utilized the facilities many times over the years for community meetings and hearings, and they are always willing and able to help us on issues that are important to the community.

We are close to the port here on the north side of the Houston Ship Channel, and this community, along with all the 29th Congressional District, from Bay Town all the way back, is impacted so much by the Port of Houston.

The hearing today is significant because of the port and its efforts in widening and deepening of the ship channel. With the Port of Houston being the number one U.S. port on foreign tonnage and the third-busiest in total tonnage, it is extremely important that the issue of widening and deepening the ship channel be addressed for safety, economic, and environmental reasons.

This is something that has been discussed and researched for quite some time, and I look forward to working with all the interested parties on it.

Port access is another issue that is important to the Houston area because of the significance to employment and the economy of the Gulf region. Nearly 100 shipping lines operate through the Port of Houston.

It is estimated that 29,000 people work in jobs that are directly related to the port and approximately 110,000 jobs that are indirectly related. Many of the people who work at those jobs are my constituents and also are constituents of a lot of the Members of Congress and our community, and I feel this hearing is beneficial to them today, and again, I want to thank Chairman Ortiz for his friendship and also for holding the hearing today and also Congressman Laughlin for attending, even though he is a real close neighbor.

Mr. ORTIZ. I would now like to recognize my good friend, Mr. Laughlin, a member of the Committee, for an opening statement.

#### **STATEMENT OF THE HONORABLE GREG LAUGHLIN, A U.S. REPRESENTATIVE FROM TEXAS**

Mr. LAUGHLIN. Thank you, Mr. Chairman, and I thank you for allowing us to have this hearing. I know, with budget constraints, we cannot have hearings in all the places that members on the Committee represent, but this hearing itself is very important not only to our State but to the nation.

I think the importance of this Committee and this hearing is demonstrated by the fact that all four Members of Congress representing the State of Texas on the Merchant Marine & Fisheries Committee are on this Subcommittee.

Certainly, we are fortunate to have you as Chairman, and since you and I represent all of the Texas coastline from Mexico to Galveston Island, it represents approximately 75 percent or close to 80

percent of the Texas coastline, and Gene representing the Port of Houston, in many ways the nation's most important port, these are issues that we have had to deal with in the five years that I have been on the Committee, and we recognize the importance of the port, the intracoastal waterway system, but we also recognize the importance to the environment, and we have got to find a way to address all these issues and the economic issue of our constituents being able to work and maintain jobs that they have up and down the coast and up and down the Houston Ship Channel and, indeed, in the Port of Houston itself.

We have serious concerns of trying to keep the channels open and the waterway system open through maintenance of those systems, and what do we do with the dredge material? It is important that we address that here today, at the very heart of the part of the United States of America that has to address these problems and live with these concerns that we have.

So, this is an important hearing for us to have, and I want to commend Congressman Gene Green for his persistence in getting this hearing organized. We all have our busy schedules, and I can thank him sincerely, on my personal behalf, because he had several other proposed dates. None would fit my schedule, and through his commitment and tenacity, we were able to work out that date, and Gene, I thank you, and Mr. Chairman, I look forward to the testimony of all our witnesses.

Mr. ORTIZ. Thank you. I appreciate the gentleman's testimony.

I would like, also, to ask unanimous consent for the record to include the statements of Jack Fields, who is the ranking minority member of the Full Committee, and Congressman Curt Weldon, the ranking minority member of the Subcommittee. Hearing no objection, the statements will be included in the record.

[The prepared statements of The Honorable Jack Fields and The Honorable Curt Weldon follow:]

**STATEMENT OF HON. JACK FIELDS, A U.S. REPRESENTATIVE FROM TEXAS, AND  
RANKING MINORITY MEMBER, COMMITTEE ON MERCHANT MARINE AND FISHERIES**

Mr. Chairman, I would like to thank you for scheduling this hearing on port access, which is a critical issue for the Port of Houston and the entire Gulf Coast region.

Having represented the Port of Houston for many years, I am keenly aware of the massive economic losses posed by restricted access to the Port. Dredging the Houston Ship Channel is crucial to the large commercial vessels transiting the area. The Army Corps of Engineers' largest dredging program is in the ocean waters of the Gulf of Mexico—over 50 million cubic yards of silt and sand a year. Fortunately, dredge disposal under the Ocean Dumping Act has not been a problem despite a number of contaminated sediment sites ringing Gulf shores. Since the vast majority of the dredge material is clean, it can be used beneficially to restore beaches and create wetlands, and I would like to see increased use of this disposal option.

This does not mean that the dredging program cannot be improved. At the Subcommittee's March hearing on ocean dumping of dredge material, we learned that the Port Authority of New York and New Jersey took over 3 years to obtain an ocean dumping permit for the disposal of dredge material from Newark Bay. Any attempts to streamline this process would be much appreciated, and I commend the Maritime Administration (MARAD) for undertaking to cut through the red tape. However, I am concerned that MARAD's efforts culminate in more than a paper "strategy" and are translated into real time-saving results.

In addition, I am aware of at least two other port-access related issues which need Congress' attention, and I am pursuing these legislatively. The first is expedited wreck removal authority to speed the removal of obstructions to navigation caused

by sunken or grounded vessels. In just one instance, local business concerns estimated that recent obstructions to commercial traffic in the Houston Ship Channel resulted in over \$200 million in economic losses to the region when the Port was forced to close. Obviously, it is in our best interests to clarify removal authority and tighten penalties for failure to respond in a timely fashion, much like the authorities we created under the Oil Pollution Act in 1990.

My second effort is to direct the National Oceanic and Atmospheric Administration (NOAA) to install current, water level, and wind sensors in the Houston Ship Channel and Galveston Bay to provide timely and accurate information to the maritime community. Tidal measurements were last taken in 1935 and circulation measures in 1963, and NOAA itself has invalidated its tide and current charts for the area. The risks of groundings and environmental damage is high, and mariners need accurate data to ensure maritime safety.

I hope that my colleagues can support these efforts. With the advent of NAFTA, and the expected increased commercial trade with Mexico, Gulf ports can expect additional vessels to utilize our port facilities. We need to ensure safe access to our ports before any significant increases in vessel traffic and we must minimize any adverse environmental effects of ocean dumping.

Thank you again, Chairman Ortiz, for scheduling this hearing, and I look forward to hearing from our distinguished witnesses.

**STATEMENT OF HON. CURT WELDON, A U.S. REPRESENTATIVE FROM PENNSYLVANIA, AND RANKING MINORITY MEMBER, SUBCOMMITTEE ON OCEANOGRAPHY, GULF OF MEXICO, AND THE OUTER CONTINENTAL SHELF**

Mr. Chairman, I would like to begin by complimenting you for holding today's field hearing on access to the Port of Houston and the entire Gulf Coast region. Central to the issue of port access is dredging.

Port access is an issue in my own district in Pennsylvania. My home district is adjacent to the Delaware River which serves the Port of Philadelphia. As with the Port of Houston, a plan has been formulated to deepen and enlarge the River's main shipping channel. When completed, the main channel will be 45 feet deep and up to 1,000 feet wide. The plan also includes improved access for the Marcus Hook anchorage area.

The current plans to enlarge and deepen the Port of Houston's main channel are significantly more ambitious than those proposed for the Delaware River Port area. Accomplishing this task will require a great degree of cooperation between Federal, State, and local government agencies.

The Port of Houston seems well on its way to achieving the level of cooperation necessary to accomplish its goal of improved access. I look forward to hearing from today's distinguished panelists on how and to what degree this success has been achieved.

Mr. Chairman, I would like to thank you again for holding this important field hearing. I am certain that the information provided at today's hearing will not only assist in the efforts to improve access to the Port of Houston, but also prove valuable in streamlining and improving the dredge-permitting process in other parts of the country, such as in my own home State of Pennsylvania.

Mr. ORTIZ. Let me introduce our first panel, which consists of representatives from the Administration and the State of Texas.

First I would like to welcome back before the Subcommittee Dr. Morgan Rees, Deputy Assistant Secretary for Planning Policy and Legislation for the United States Army Corps of Engineers. Dr. Rees is accompanied by Colonel James P. King, Commander of the Corps' Southwestern Division.

Next is Mr. Russell Rhoades, Director of the Environmental Services Division of the Environmental Protection Agency, Region 6.

Last but not least is our good friend, Gary Mauro, Land Commissioner of the State of Texas, and at this time, I would like to thank you for being with us this morning, and I guess we can begin with you, Dr. Rees, with your testimony.

STATEMENT OF DR. MORGAN REES, DEPUTY ASSISTANT SECRETARY, OFFICE OF PLANNING POLICY AND LEGISLATION, U.S. ARMY CORPS OF ENGINEERS, ACCOMPANIED BY COLONEL JAMES P. KING, COMMANDER OF SOUTHWESTERN DIVISION

Dr. REES. Thank you, Mr. Chairman and members of the Committee. We appreciate very much the opportunity to testify and, in particular, appreciate the initiatives taken by the Subcommittee to have this hearing and other similar hearings. The issue of disposal of dredged material is truly a national issue.

As you mentioned, I testified before the Subcommittee in March, related more to the New York situation, but when we heard of this hearing, we thought it was important for the Washington level to be involved, because this is truly a national issue, and we hope that we can learn some of the benefits of what has been going on in the Houston area and perhaps apply them nationwide.

Colonel King is here because we know that you are interested in the specifics as related to Texas ports, and Colonel John Bassalato is here, Commander of the Galveston District, should you have any questions that are more detailed than what we would be able to respond to from the national level.

After the hearing in March, I came down here to Houston and met with the Port officials and with the Interagency Coordinating Team to follow up on becoming more familiar with the nature of the issues and try to do what we can at the national level, from a policy perspective, to help get past a lot of the stalemates that, in fact, had arisen over the years.

Just as a personal note, I started working on this issue, not in Texas but in New England, when I first became employed by the Federal Government over 20 years ago, and we have been dealing with the same issues for that period of time, and as I said earlier, I welcome the Committee's involvement to help us resolve some of these longstanding issues.

I have full testimony that responds to the questions that you asked in your letter of invitation, and I would like simply to summarize a few of the highlights and enter that testimony for the record, as it was submitted.

Mr. ORTIZ. Your complete statements will be included for the record.

Dr. REES. Thank you.

Let me start first with a couple of things that have happened since our March hearing that I think are very important and indicate that we really are heading in the right direction. That is not to say that we do not have a long way to go, but we are, I think, heading in the right direction.

In the Water Resources Development Act of 1992, there is a provision, Section 204, which would allow the Corps of Engineers to adopt as a matter of policy, in a formal way, beneficial uses of dredged material and, in fact, provide 75 percent of the cost of that from the Corps budget.

We are starting to implement that, and this year we have \$3 million in the budget to do that, but our expectation is that it will grow well beyond that in future years, and the funding limitation

and the authority is \$15 million a year, and we hope to get up to that fairly soon.

That holds great potential for solving some of these long-term disagreements among interested parties about what to do with the dredged material.

The other event is the formation under the auspices of the Secretary of Transportation of an interagency working group at the Washington level to deal with this issue from a policy perspective. That group has met on a number of occasions. We have developed a charter which specifies how we expect to proceed and what we would like to come out of that activity, and that charter is appended to my testimony.

A couple of the points that you raised in your letter of invitation that I would like to address specifically:

You asked how we are doing with implementation of what amounts to be Title V of the Water Resource Act of 1992. That is the coordination with EPA on disposal and on-site designation and a few other things.

I am pleased to report that, over the years, our relationships with EPA have continued to improve to the point now where I think the agencies are really working almost as one. I cannot assert that everything is perfect, but we are very close on most of the issues.

We exchange a lot of information. We meet constantly at all levels of the organization, at the field level and at the Washington level, and many of the difficulties that we have had in the past in keeping the process going, I believe, are being resolved as a result of the much-improved working relationships between the agencies, and that is not just to limit it to EPA. The working relationships with other agencies is continuing to improve significantly.

I will just make a personal side observation that the cooperation at the Washington level over the past year has substantially improved, and as a person who has been dealing with this issue for over 20 years, it is very heartening to see the willingness of all of the agencies at the Washington level to work together.

You asked, in your letter of invitation, about the permit process, and I want to expand the notion there not to just the permit process, because the same process that we follow affects the maintenance dredging that is done by the Corps of Engineers and affects the new work that is done in channel improvements.

The Corps goes through the exact same procedures, the same sort of analysis, the same sort of evaluation for their own projects that they subject the permit applications to, and the bottom line of that process is we really need to look at the disposal and the evaluation of alternatives for disposal from what we like to call in the business a multi-media analysis.

In other words, you have got to look at all alternatives on an equal and objective basis, and we believe very strongly that to say up front that one alternative is off-limits or some other alternative is off-limits really precludes a choice by government of what the best alternative is, because you never know until you go through the analysis and evaluate all the environmental effects and all the economic effects and all the social effects and the engineering effects—until you make that sort of analysis, you do not know what

the best alternative is, and we would urge, as we proceed in resolving these issues, that we keep that principle in mind—it is critical—and that that analysis is based on actual effects of what happens and not on some pre-conceived, unsubstantiated notions about what might happen.

One other point I made in March—and then I will close in my summary here—probably, in my judgment, one of the most significant points that, over the years, has been overlooked but is now being realized, and that is, when issues arise about contaminated sediments and people look to the Corps of Engineers or look to the ports or look to the permit applicants to solve those problems of what to do with this contaminated material, people had forgot over the years that the Corps and the ports and the permit applicants were not necessarily responsible for those contaminants being there in the first place.

They were there through industrial discharges, they were there through unregulated activities that affected the sediments, and we believe—and it is beginning to work in some places—that other agencies and other parties responsible for causing the pollution in the first place need to be brought into the process of solving the problem, and to put the burden of solving the problem on the navigation industry is improperly placed, in our judgment.

That summarizes my statement. I do want to thank the people of Galena Park and the high school here. They have been most cordial. We feel very welcome, and that is a very nice feeling, and we are glad to be here. Thank you.

[The prepared statement of Dr. Rees can be found at the end of the hearing.]

Mr. ORTIZ. Thank you, Doctor.

Mr. Rhoades.

#### STATEMENT OF RUSSELL RHOADES, DIRECTOR, ENVIRONMENTAL SERVICES DIVISION, ENVIRONMENTAL PROTECTION AGENCY, REGION 6

Mr. RHOADES. Mr. Chairman, my name is Russell Rhoades, and I am representing Carol Browner, the Administrator of the Environmental Protection Agency. We are pleased to appear before you today to discuss port access in the Gulf of Mexico and the management and disposal of dredged materials.

We commend the Subcommittee for your interest and welcome the opportunity to highlight our regulatory responsibilities and ongoing coordination and planning activities affecting port access in the Gulf.

Maintenance of the nation's navigation system is essential for domestic and foreign commerce, navigation, and industrial development of the United States. Port access in the State of Texas is sustained through maintenance dredging activities conducted by the Corps of Engineers.

I would like to briefly summarize the regulations and permitting process which govern the management of dredged material, the importance of the beneficial use of dredged material, and the extensive efforts of the Interagency Coordination Team, which Dr. Rees

has referred to, involved in the Houston Ship Channel Navigation Project.

I would concur with Dr. Rees that the coordination has been extraordinary. We have all learned a lot about not only environmental issues, navigation issues, but learned a lot about each other and the agencies we represent and trying to understand how we can all work better together. So, we are pleased with the effort so far.

The regulation of dredged material disposal within the waters of the United States and ocean waters is a shared responsibility of the Environmental Protection Agency and the Corps of Engineers.

The Marine Protection Research and Sanctuaries Act of 1972, often referred to as the Ocean Dumping Act, is applicable to waters of the Gulf of Mexico, and the Clean Water Act applies to coastal and inland waters.

EPA has authority under the Ocean Dumping Act to designate ocean disposal sites, which has two primary purposes. One is to minimize the environmental effects, and the other is to minimize interference of dumping activities with other activities of the marine environment.

A permit is required for disposal of dredged material to regulate the times, rates, quantities, and methods of dumping at the site. The Ocean Dumping Act requires EPA, in consultation with the Corps, to develop environmental criteria that must be complied with before any proposed ocean disposal activity is allowed to proceed.

The Ocean Dumping Act assigns to the Corps the specific responsibility for authorizing the ocean disposal of dredged material. EPA reviews the Corps determination of compliance with the ocean disposal criteria. If EPA determines ocean disposal criteria are not met, disposal may not occur without a waiver of the criteria by EPA. To date, such a waiver has not been enacted for ocean disposal projects along the Texas coast.

Municipal or industrial discharges are not permitted in Texas or Louisiana coastal waters under the requirements of the Ocean Dumping Act. Material approved for ocean disposal in this region is composed of dredged material generated from the course of a work's projects.

In an effort to ensure that dredged materials are suitable for ocean disposal, the Corps and EPA jointly publish a dredged material testing manual entitled Evaluation of Dredged Material Proposed for Ocean Disposal Testing Manual. It's commonly referred to as the Green Book. A similar updated manual for evaluation of discharges regulated under the Clean Water Act is currently under development.

Before an EPA site can be used, the Corps must provide to EPA demonstrating the material's compliance with EPA's ocean dumping criteria. The 1992 Water Resources Development Act amendments to the Ocean Dumping Act require that EPA and the Corps develop long-term site-management plans providing an opportunity for public comment.

Proper management of dredged material disposal is important for the protection of our aquatic resources and will require substantial resources for proper disposal management. However, no additional resources have been appropriated. Thus, it may be diffi-

cult to achieve the deadlines for site designation, development of site-management plans, and conducting more intensive monitoring and measurement which is required under the Water Resources Development Act. To realize the benefits of comprehensive ocean disposal management as envisioned under the Water Resources Development Act, additional resources will be required.

Section 404 of the Clean Water Act requires EPA, in conjunction with the Corps, to promulgate guidelines for the discharge of dredged or fill material into waters of the United States to ensure that such proposed discharge will not result in unacceptable adverse environmental impacts.

Section 404 assigns to the Corps the responsibility for authorizing all such proposed discharges and requires application of the guidelines in assessing the environmental acceptability of the proposed act.

Dredged material disposal activities must comply with applicable National Environmental Policy Act requirements regarding identification and evaluation of alternatives for the management of dredged material.

Dredged material is a manageable, valuable soil resource, and it is the policy of the Corps to fully consider all aspects of dredging and disposal operations with a view toward maximizing public benefits.

Included in their analysis is the beneficial uses of dredged material. General categories of beneficial uses included habitat restoration, beach nourishment, wetland creation, and barrier island restoration, to name a few.

Concerns over human health and ecological impact of contaminated sediments have prompted EPA to form an Agency-wide Sediment Steering Committee.

A Contaminated Sediment Strategy is being prepared which will define the extent and severity of sediment contamination and describe specific actions which are needed to bring about consideration and reduction of risks posed by contaminated sediments.

EPA is developing sediment quality criteria for the protection of benthic organisms. These criteria will be made available for public review in the **Federal Register** by mid-1994. EPA will publish the documents in final form after considering public comments.

Development of sediment quality criteria is an active research effort by EPA. It is anticipated, over the next 10 years, the criteria will be integrated in our assessments of sediment quality.

Also, the Water Resources Development Act established a National Contaminant Sediment Task Force, which is chaired by the Corps of Engineers and EPA and involves several of the Federal resource agencies and user groups and so forth.

We are pleased to state, to date, the dredging activities have not been restricted along the Texas coast area as a result of the presence of contaminated sediment. The materials proposed for disposal along the coast have passed the requisite test ensuring no adverse environmental impact.

I would now like to mention just a few comments with regard to the project that Dr. Rees referred to, the deepening and widening of the Houston Ship Channel.

In 1967, as you know, the U.S. House Committee on Public Works authorized the Corps to conduct a Galveston Bay Area Navigation study for Galveston Bay. As a result of the navigation study, the Corps recommended enlargement of the Houston Ship Channel from its current dimensions of 40 feet deep and 400 feet wide to 50 feet deep and 600 feet wide.

The Corp's National Economic Development Plan called for the unconfined disposal of 92 million cubic meters of new work and 145 million cubic meters of maintenance material and approximately 4,455 hectares of Galveston Bay bottom. The Corps' proposal was not well received by the Federal and State resource agencies or the public or EPA, included in that group.

In 1990, the Assistant Secretary of the Army of Civil Works directed the Corps to perform additional environmental studies and to prepare a supplemental Environmental Impact Statement for the locally-preferred plan and ship channel deepening and widening project and to create an Interagency Coordination Team to improve coordination and communication among the Federal and State resource agencies, the project sponsor, and the Corps.

The Interagency Coordination Team members include representatives from the U.S. Fish & Wildlife Service, the U.S. National Marine & Fisheries Service, the EPA, the U.S. Soil Conservation Service, the Galveston Bay National Estuary Program, the Port of Houston, Galveston Wharves, Texas Parks & Wildlife, Texas General Land Office, Texas Natural Resource Conservation Commission, Texas Water Development Board, and the Office of the Governor and the Corps of Engineers.

The overall objectives and benefits of establishing the Interagency Coordination Team and the environmental studies program were identified early in the coordination process, providing opportunities for the Corps, resource agencies, and environmental interest groups to obtain an acceptable project that both protects the Bay resources and provides for environmentally-sustainable development.

This group, Mr. Chairman, has been meeting for the last few years, and as I say, it has been a very positive experience, I think, for all concerned. I think, through the process, we're coming to better projects in the Bay, and we're learning a lot more about areas for which we are charged. So, it has been a very positive working relationship.

I want to commend the Corps and the Galveston District Office for their support in seeking sound alternatives for the management of dredged material and am encouraged by our positive working relationship.

Realizing the need for dredging and dredged material disposal operations, EPA will continue to ensure that our aquatic resources are preserved through implementation of our regulatory programs.

It is imperative that we maintain our strong relationship with the Corps to achieve the requirements under the Water Resource Development Act, especially at a time with limited resources.

The extensive efforts undertaken by the Interagency Coordination Team provide the perfect example that such coordination can continue.

That, Mr. Chairman, summarizes my testimony at this time. Thank you.

[The prepared statement of Mr. Rhoades can be found at the end of the hearing.]

Mr. ORTIZ. Thank you very much.

Mr. Mauro.

#### STATEMENT OF GARRY MAURO, LAND COMMISSIONER, TEXAS GENERAL LAND OFFICE

Mr. MAURO. Mr. Chairman, Congressman Green, Congressman Laughlin, it is a real pleasure to speak before this Committee today in your district, Congressman Green. It is always a pleasure to visit Houston, Texas. I want to thank you for the opportunity to comment about the management and disposal of dredged materials.

As you know, Texas has 367 miles of Gulf coastline and over 1,000 miles of shoreline, and right from the start, I want to say there is no question that port access is essential to a healthy Texas economy, and also, I want to reiterate and agree with the gentleman who spoke before me that the working groups we now have with the Port of Houston are just that, working groups that are coming to solutions that I think all Texans and all public policy-makers can support, but I would also say that just as important to port access is tourism, productive fisheries, secure property values, wildlife habitats, and the overall environmental integrity of our coast.

As I know you know, I manage 20.5 million acres of State land, including about 4 million acres of coastal and submerged lands. Because of this responsibility, we are in the process of finally putting together a comprehensive coastal management plan for our State, one that we hope will also allow us to join the Federal Coastal Zone Management Plan.

Our goal is a plan that deals with all the aspects of coastal management in ways that protect the environment but yet promote economic development. Dredging policies, of course, will be part of that coastal management plan, and the policies taking shape take into account the impact of dredging, the impact of the disposal of dredged materials, yes, on permanent school fund lands, on leasing, coastal erosion, on the diminution of private property values, and on wildlife habitat.

By the same token, the policies taking shape aim at maximizing the beneficial use of dredged materials. Our first response to the legislature's charge that we develop a coastal plan was to conduct a series of public hearings and consensus-building workshops in communities along the coast. Virtually anyone and everyone with an interest in or concern about the coast attended—conservationists, scientists, port managers, representatives from the petrochemical industry, developers, commercial fishermen and shrimpers, recreational fisherman, and private citizens.

We are going to have a coastal management plan that is a grass-roots plan. It's not going to come from Washington, and it is sure not going to come from Austin. It is going to come from the Texas Gulf Coast.

The series of grassroots hearings and workshops ultimately identified beach access, dune protection, protection of wetlands, and coastal erosion as the three most pressing problems coast-wide, and erosion was number one.

Members, you may wonder why I am talking about all this, but from Texas' perspective, the Port of Houston and the Corps is doing a good job on port access, and we are moving in the right direction, but Members, if you look at what other coastal States are doing, we are way behind on beach nourishment as a way to solve our beach problems.

We only have one completed nourishment project, a small expanse at Surfside, in your district, Congressman Laughlin, and one other project just getting underway at Galveston.

In contrast, beach nourishment is a frequently-used staple in the anti-erosion arsenals for California, Florida, and a number of other seaboard States.

Clearly, Texas lags way behind in protecting and restoring one of our most basic resources and most cherished assets, our beaches.

Mr. Chairman, we have more public beaches in Texas than anywhere in the world. In fact, except for a small expanse of ranches in south Texas, all our beaches are public. Yet, to date, we have ignored the erosion.

Texans can virtually watch their beaches disappear, and it is time that, yes, we solve the port access problems and we work with the Port of Houston, and I commit my office to doing just that, but it is also time that we make our beaches and the erosion problem we have in the Texas Gulf Coast a major, number one public policy issue to be resolved.

Thank you.

[The prepared statement of Mr. Mauro can be found at the end of the hearing.]

Mr. ORTIZ. Thank you. I think that is one of the most serious problems. In fact, I have witnessed it for several years in South Padre Island, as you well know, and I hope that maybe we can do something to alleviate those conditions there.

I will now begin some questions, and then I will allow the other members to ask questions. First, I have a question for Mr. Rhoades.

What is the status of EPA's development of numerical sediment quality criteria, and how will the development of this criteria impact dredge disposal operations and beneficial use projects in the Gulf of Mexico?

Mr. RHOADES. Mr. Chairman, right now, there are five pesticides that are being developed and proposed for sediment contamination criteria. These particular criteria probably will not be seen in the **Federal Register** until about mid-1994, sometime this next year.

In addition, there are five heavy metals—lead, nickel, copper, those kinds of things—that are being looked at, but they probably will not come about in terms of criteria until about another two years.

Right now, Mr. Chairman, sediment is looked at from a variety of different perspectives. It is looked at from physical parameters. It is looked at from some of the basic chemical parameters. There are what we refer to in business as the 140 priority pollutants that are looked at in this material.

These tests are already run on dredged material. This is in this Green Book that I referred to. Many of the criteria that we currently have on board that we must comply with are contained in that book, and the Corps runs those tests on the current materials.

So, the criteria that I am referring to, these five pesticides and, down the road, these heavy metals, is not the only thing that sediment is being judged at and has been judged in the past by other means. This is just an additional number of criteria that will be proposed.

In terms of the impact of those criteria elements on future dredge disposal activities, I think that remains to be seen. It is too early to say at this time what impact that might have. However, it does not mean that dredging will stop.

It means that, if we have those contaminants in the material, in the dredged material, we will have to go to extra means to assure that that material is appropriately mitigated for, and if we cannot treat the material, then finding some other more appropriate place to place that material.

Mr. ORTIZ. Will you be separating the materials that you dredge?

Mr. RHOADES. That could be a possibility, although technologies for that kind of thing I think would have to be developed, but as I say, the fact that there is additional criteria means that we are trying to assure that materials do not get placed in areas which are ecologically sensitive with some of these other kinds of materials in them, but there are various means that one can go to, to try to assure that that does not happen.

Mr. ORTIZ. Thank you.

I have another question for Dr. Rees and Mr. Rhoades. Do you have any indication about where the work of the Marine Administration Interagency Working Group is headed and what its recommendations may be? Do you have any idea?

Mr. RHOADES. Well, maybe Dr. Rees can speak to this better than I can.

Dr. REES. Mr. Chairman, as I mentioned in my remarks, we have included the charter of the Interagency Working Group in the testimony.

The bottom line of what recommendations we might come up with—of course, we do not know, but there is a process established to look at the existing process through which we—or with which we reach decisions on disposal of dredged material, trying to examine what is actually going on in different parts of the country and picking the good elements from those experiences and trying to build on those for some sort of national—I do not know if I want to go so far as to say national policy but at least national guidance to the respective field offices of the agencies involved.

We are doing a lot of interagency work, of course, here in Texas, and the Beneficial Uses Group and the Interagency Coordinating Team are, I think, very good examples of how we can proceed.

So, this task force at the Washington level will be examining that process, will be examining the processes in San Francisco Bay, for example, in New York Harbor, in Toledo, and several others, and try to build on the successes in different parts of the country and extend that knowledge to the entire country, but as far as any specifics, of course we do not know at this point.

There will be a number of public information and public input meetings connected with this effort, and so, we will just have to see how that process develops.

Mr. ORTIZ. I just have one more question for Mr. Mauro, and my question is, does the General Land Office plan to develop a coastal management program that includes requirements that go beyond those necessary to satisfy the Federal Coastal Zone Management Act, requirements of the Ocean Dumping Act, or other Federal laws, and if so, would you please explain and provide the Committee with a description of what those additional requirements may be?

Mr. MAURO. Mr. Chairman, as you probably know, we are setting up a networking plan. That is, we assume that we have a pretty good coastal management plan in Texas.

Now, in our public hearings, as I pointed out, there are some glaring shortfalls in erosion control, beach access, dune protection. Those are the only areas where we are going beyond current law.

What we are doing is getting all the agencies involved and in synch so that we are all singing off the same song sheet and we are all working toward a comprehensive plan that is interconnected.

What the law does say is that we want to be certain that, after we go to all this work to get a plan that everybody agrees to, that we are actually enforcing that plan, but no, we are not going beyond current Federal law, and I do not think there is sentiment at the grassroots level that we go beyond current Federal law.

Mr. ORTIZ. Very good. I would like to allow now my Vice-Chairman of the Committee, Mr. Green, for questions.

Mr. GREEN. Thank you, Mr. Chairman. The first question is directed to the Corps and any other members of the panel who would like to answer.

The testimony from the EPA talked about the time lag that it takes and the numbers of studies that it takes to get a project moving, and I think the testimony from Mr. Rhoades was—you know, the actual approval or the discussion was in 1967, and I know they have been moved back because of the studies that are being done and hopefully will be there in the 1996 authorization for the deepening and widening.

Is there any light that you could shed that the studies will be completed by then? Because I know the calculations—and it boggled my mind when I heard the calculations that have to be done—and you might share that with the Committee—using the biggest computer in the world or something like that, and also, if you could give us some assurances that we would be able to be there in 1996 to ask for that authorization.

Dr. REES. Mr. Green, I guess I'd be a little too bold to give you an absolute assurance, but I did discuss this at length with the district and the staff, and we are still on schedule for a 1996 authorization.

There are some uncertainties, of course, and that is why I cannot give an absolute assurance, but we are on schedule. We expect to have the project ready for authorization in 1996.

If there are some, let us say, significant unknowns that would arise about the model studies and about the analysis of the results and so forth, then I believe there is a commitment from all the parties to continue to move forward based on the knowledge that is

available, rather than going back and saying, well, we need another two years of study, and I think there is that commitment, and so, we do not really expect to miss the 1996 date.

Mr. GREEN. Let me follow up on that with the concern from Land Commissioner Mauro in the beach nourishment issue, and it seems like it is a win-win. We have this dredged material both for maintenance but also for deepening and widening, and the beneficial uses that we are going to hear from the next panel—and your testimony talked about it.

Why don't we have more projects in Texas, other than the one that is in Congressman Laughlin's district, and I can ask that, because as much as I represent the Port of Houston, we really do not have a beach, and so, for other members of the delegation that have beaches, is there some discussion on expanding that? From my standpoint, I want to have a place to put it.

Dr. REES. I understand, and the Corps does, nationwide, including in Texas, put material on the beach where, in a given case, it makes sense, given the authorities of the Corps, and so, there are some caveats in there.

When I say "given the authorities of the Corps," if the Corps were to build a beach, for example, it would have to go through a study of the costs and benefits and environmental effects, et cetera, et cetera, of building a beach as what the economists like to call a separate output of the project.

In other words, if we are doing a navigation project and you have dredged material and you say you have a bunch of dredged material here and it is pretty sandy and we ought to put it on the beach, as a matter of the Corps program, we would separate the beach project, at least conceptually, and call it a beach restoration project, and we have a separate process that deals with that.

To take it on as beneficial uses of dredged material, we could do that and we have done that where it meets the criteria of the program.

Again, we discussed this issue in preparation for this hearing, and I am informed that the Corps has looked at the opportunities for beach nourishment of using dredged material, and in fact, I will provide the specifics for the record, but there are several cases where they have done that, and as I say, where it makes sense, then we will do it.

What we need to keep in mind is that, just because there is a bunch of dredged material available and there is a beach somewhere that is eroding, it does not necessarily create a match, because it may make more sense to get the material to build the beach from a more economical place. So, the Corps looks at all that stuff, and when they reach a conclusion about that, then they will make a decision.

Now, if there are individual cases that people are concerned about, we would be glad to look into them and provide specific analysis for you for the record.

Mr. GREEN. Commissioner Mauro?

Mr. MAURO. Well, as everyone knows, I am somewhat involved, or was, with the new President and the new administration.

So, far be it for me to criticize the current administration, but the fact is I agree with everything Dr. Rees said up to the point of

the Corps being very aggressive in this activity in the State of Texas.

If you look at Florida and if you look at some of the eastern States and if you look at the West Coast, they have been very aggressive about finding suitable dredged material for homes on beaches, and we have not been very aggressive.

The good news is we change leadership regularly down here in the Corps, so nobody has to take the heat. As far as I am concerned, everybody has done a reasonable job for the time and the place.

The purpose of my statement is to forget about what has happened and just look at what is going on in the rest of the country and let's put us in the mainstream or even on the cutting edge, because we have public beaches that are eroding very significantly in the short run, and I want to make certain that somebody squeaks the wheel and tells people we want beach nourishment, beach replenishment, and anti-erosion plans to be a major part of any dredging program we have in our State.

From the Sargent's Beach problem to the Galveston Island problem to the Padre Island problem to the South Padre Island problem, we have eroding beaches all over this State, and for whatever reason, in my judgment, after having traveled to California, traveled to Florida, and visiting those district offices, we have been slow to implement a real plan for beach nourishment in this State, in my judgment.

It is debatable, but the past is behind us. Let us go forward and come up with a good plan for Texas.

Mr. GREEN. Let me ask this. It seems like we have beneficial uses and there are some good examples that the Port of Houston has on beneficial uses, restoring wetlands or creating wetlands, the islands in the Galveston Bay, the hatcheries, and of course, offshore dumping, and that is leading up to this next question, but now we have the beach replenishment or nourishment that just gives us another option to utilize that dredged material. Of course, we are talking about non-contaminated material, too, and I know that is the first criteria, plus to make sure it is suitable.

Let me ask about the offshore—the ocean dumping and the contaminated dredged materials. Are there any alternatives? Because we heard in hearings over the last number of months, in this Committee, about the capping issue on the east coast and the problem with the cap breaking and, of course, the contaminated materials then getting back into the ocean. Could you address that on the situation, particularly, in the Gulf of Mexico?

Dr. REES. Of course, there are a number of alternatives to just plain open water disposal, and as you point out, capping of contaminated sediments is one alternative.

Containment is another, you know, the good old confined disposal facility, and that's the predominant method in the Great Lakes areas, although frankly, the sediments there are generally significantly more polluted than they are in the Gulf Coast, and in each disposal activity, the Corps looks at all of the options available, and as I said earlier in my testimony and I will reiterate that it is critical that, each time we look at a disposal event, we believe that we should look at all the alternatives on an equal basis and, applying

environmental criteria and economic and engineering criteria, come up with a judgment of which is the best.

I would like to mention—because it was sort of an open-ended situation at our last hearing, in March, about the cap in the New York area, and certainly, some of that cap eroded in a storm—I forget—last February, whenever it was.

The Corps has since completed its survey and confirmed that the cap had eroded to some degree but not to any kind of critical point where any of the contaminants were re-suspended in the aquatic environment, and they, in fact, since have built the cap back up, and so, that sort of closes that loop.

The point of that is that capping of contaminated material can be an effective measure, again if you consider all of the associated effects, environmental and economic, and of course, the more material that you have to use to cover the cap, the more expensive that becomes, and that may, in turn, drive you to some other alternative, but again, the bottom line is that each alternative needs to be examined in each case for those case-specific features that surround that disposal activity.

Mr. GREEN. Have we utilized deep dumping with caps in the Gulf of Mexico?

Dr. REES. I do not believe we have. No, I am getting a head shake, no, down there.

Mr. GREEN. I did not know of any.

Dr. REES. I was not aware of any.

Mr. GREEN. The testimony we heard earlier was the East Coast.

Dr. REES. Yes.

Mr. GREEN. Thank you, Mr. Chairman.

Mr. ORTIZ. I would just like to ask one question that is related to what Mr. Green asked.

When we talk about the serious problems of erosion and all the beneficial programs that we have, the big question comes, who should pay for it? Should it be the local government? Should it be the State government? Should it be the Federal Government? Should we work out a formula? Because I know this is the big question that will be asked, who will pay for it? I mean it needs to be done, but the big question is how are we going to pay for it?

Dr. REES. Mr. Chairman, if I might comment on that—and in response to Mr. Mauro's remarks—there is a process in the Federal Government for studying these kinds of situations, and the Corps routinely, as you folks are well aware, conducts reconnaissance studies of whatever coastal erosion problems there are, and they look for sources of material and develop costs and benefits of doing coastal protection projects, and so, if there are specific areas that need to be looked at, then Congress could certainly consider whether to ask the Corps to do a reconnaissance study of whatever the problem is, and again, as I said earlier, it is important to remember that just because some dredged material is available at a certain location does not mean that that is necessarily the best thing to do about some beach erosion problem. There may be other solutions that make more sense because of costs, because of environmental effects, because of the engineering technology involved.

Instead of just saying, well, you ought to take all the dredged material and put it on the beach—that is not necessarily the best solution to the best erosion problem.

Mr. LAUGHLIN. Mr. Chairman, would you yield?

Mr. ORTIZ. I yield.

Mr. LAUGHLIN. I have a response to your question, sir.

I think you ought to also look at the Inland Water Trust Fund for some money.

The users in Texas have consistently, since the creation of that fund, paid money into it, and we have yet to get the first dollar spent out of that fund on any construction projects in the State of Texas, and I do not mean we need to pave highways into the DFW Airport.

I am talking about down on the Gulf of Mexico, on the inland water system, where the users of Texas are paying tax dollars into this fund, yet we are not getting any benefit from paying that, because it is all getting spent on the upper Mississippi and the Ohio barge system, and so, I just pull that out as an area to look at.

Dr. REES. Yes, sir. I believe we are planning to spend on Sargent Beach—50 percent of the Sargent Beach project—

Mr. LAUGHLIN. They have not done it yet. I am familiar with it. I have been involved in those discussions, and there was a great reluctance on the part of the independent waterway trustees to do that.

Mr. ORTIZ. Mr. Mauro?

Mr. MAURO. Mr. Chairman, just for the record, the projects that I mentioned are going to be paid for by local funds, with local tax dollars, and I do not think most Texans think that is inappropriate, but at some point there ought to be some kind of formula, because I do not think anybody—Dr. Rees, I have been Land Commissioner for almost 12 years—I do not think anybody wants you all to put all dredged material on some beach or some shoreline that is eroding.

What we want is a comprehensive, cost-effective nourishment plan for our Gulf Coast that your plan already calls for. We do not feel like that has happened in the past.

Mr. ORTIZ. When you say local moneys, you are talking about our local State?

Mr. MAURO. I am talking about in Surfside and in Galveston, the new projects coming on. The local community used local sales tax to pay for the nourishment program—they wanted it that badly—and I think we can do better than having a local community paying local sales tax, 100 percent of a project, some kind of formula that makes sense.

I am the first to say we do not have an unlimited pot of gold to pay for beach nourishment or shoreline replenishment. We have got to come up with something that makes cost-effective sense. My point is I do not think we have paid attention to it significantly in the past.

Mr. ORTIZ. Dr. Rees.

Dr. REES. Thank you. I mentioned a few minutes ago, there are some study opportunities to see what does make sense, and I am not aware that the Corps ever turned down an opportunity to study a coastal erosion problem, and there is a formula established in the

Water Resources Act of 1986 for beach restoration projects, 65 percent Federal, 35 percent non-Federal.

So, all that stuff is already on the books, and if it has not worked in Texas for some reason, we will certainly be pleased to work with you to see why and see what can be done.

Colonel KING. Mr. Chairman, Mr. Green and Mr. Laughlin have addressed a very important issue here, and I appreciate Mr. Mauro's answer to it. It is a very sensitive problem in the Corps, beach erosion and the potential beneficial uses of dredge disposal to solve those problems.

I do not want the members of the Committee and certainly Mr. Mauro to leave today thinking that we are doing anything different in Texas and on the Texas coast. In fact, it is an important issue that I have discussed personally with the Commander, the District Engineer of Galveston.

Certainly, we are in full compliance along the Texas coast with administration policies and Federal law. In fact, they are doing some rather innovative things in the Galveston district, where the Galveston commander has directed that, for each of these type projects along the coast, they do a beneficial uses decision memorandum.

So, every project that comes into the district, they look—they put on their creative glasses—we have never done it this way—type of thinking and process planning to look for potential uses.

Through time, particularly comparing Texas to the eastern coast and Florida, many of the projects along the eastern coast and Florida were developed in earlier days, in earlier funding opportunities, different policies, et cetera. I know that the Galveston commander has personally visited projects in Florida. He has gone up to the East Coast to look at those projects, to see the differences, and if, in fact, there is something in how we are evaluating projects that they are doing that we could do better, or vice versa.

A great deal of the problem can lie in the land value aspects of the property being protected, particularly along some of the eastern seaboard, and the fact that they do not have seawalls, very expensive land, and it is hard to find a similar parallel situation along the coast of Texas, where we have the value of property protected that is not already protected. There might be some exceptions to that.

The other thing is the nature of the material that we are dealing with by nature of where we are in the world down here. The dredge material has high silt and organics, whereas in Florida, they have not only beach-quality sand readily available in terms of quantity but also distance. So, it is very easy for them to bring beach-quality material to bear on these type problems.

Earlier this summer, the Galveston commander hosted a nationwide conference for beach erosion and beneficial uses of spoil and to re-look our planning processes, to see if we can do it better.

The Texas Land Office participated, other Federal agencies participated, and it is something I think we are all commonly working with the State of Texas to do better, and certainly, we will work with the Members of Congress and this Committee to do that, but we are of one team and one corps here, and we certainly want to continue the good relationship we have with the State of Texas,

and we will be very proactive and innovative and do everything we can.

Thank you, Mr. Chairman.

Mr. ORTIZ. Thank you.

I would like to yield to my good friend, Mr. Laughlin, for questions.

Mr. LAUGHLIN. Thank you, Mr. Chairman.

I want to publicly commend and thank Commissioner Mauro for the leadership he has given along the Texas Gulf Coast, and I know that firsthand, and Gary, I appreciate what you have done, but once again, you hit the nail on the head in this area when you said one of the problems that we have in addressing beach nourishment is the lack of having our district commander in Galveston there very long.

January the 3rd, next month, I will complete five years in Congress, and during that five years, I am now working with the third district commander, and there has been nothing wrong with any of them.

They are all talented, bright, and committed, but just about the time they get familiar with all the personalities and all the problems—we cannot get to beach nourishment, because we have some other things that are more senior or have higher priorities, and we need some decisionmakers that can be there long enough to make decisions, once they become familiar with the problem, and I am happy to have some rotation, but it has been happening too quick.

For instance, this beach nourishment—Sargent Beach ought to be a lesson to everybody on the Texas coast. While it is different in some natures from the other parts of the Texas coast, it is the dramatic area right now where we have had too much beach erosion, and not all our dredge material is contaminated. In fact, the vast amount, from what I hear, is uncontaminated. If you go to Solomon's district, when you leave the Nueces County area, there are few areas that would have any economic activity to contaminate them.

We are not saying you ought to take contaminated material and just dump it on the beach. None of our citizens want that, but we are concerned about the closing of ports, particularly out of the Brazos and Colorado River. We are concerned about stoppage of maintenance activity, and I would hope—and my question to you is what is being considered about how to handle contaminated dredged material?

It seems to me there ought to be some review taking place within the EPA for consideration that you do it in a somewhat similar fashion as the industrial hazardous material. Can you shed any light where you are on how we dispose of contaminated dredged material, rather than just shutting down the project?

Dr. REES. When dredged material is contaminated, of course, it raises a whole different set of questions and problems than if the material were not contaminated. There have been developed over the years a number of techniques to deal with contaminated materials.

We mentioned one earlier, capping, where the material is placed in an offshore area and then capped with clean material of whatever design depth is necessary to contain that material, confined

disposal in the water through a containment facility or land disposal, and those are really the principle disposal options for contaminated material, but the Corps and EPA and others have done a lot of study over the years on other options—incineration or bio-remediation and so forth—and frankly, we have spent a lot of time and a lot of money examining what other alternatives might be appropriate for dealing with contaminated material, and it turns out that none of these alternatives, other than the principle ones I mentioned, come anywhere near being cost-effective.

Now, we realize that shutting down a port is not an option, and I think sometimes, frankly, people may forget about that when they get involved in the details of these studies and so forth, but we certainly do not believe—

Mr. LAUGHLIN. Well, we have shut down the Gulf Intracoastal Waterway sometimes for days because of some contamination.

Just recently, over in Louisiana, there was a spill. We shut down the Intracoastal Waterway for three days, in which over 100 tows sat idle on both sides of the spill.

Dr. REES. I am not familiar with the circumstance there, but I sense that that is different from the notion of dealing with dredged material and how you deal with contaminated material in a dredging event.

Mr. RHOADES. Mr. Laughlin, what happens during a spill, the Coast Guard or EPA gets involved or the State gets involved in trying to assure that the materials, number one, are not going to cause a further problem.

Sometimes these materials may be explosive or flammable, and many times, they are toxic. So, we are concerned immediately with public safety and so forth.

We are also concerned, at the same time, about these materials drifting into marsh areas and so forth and impacting sensitive environmental areas, ecological areas.

So, it is true that, during a spill, traffic is usually stopped, just because of the emergency that exists and so forth, and a lot of times, the Coast Guard, or whomever, is trying to clean up that material, and if there is a lot of traffic going in there, it is impossible, and all you are doing is distributing the material out to the marshes and that kind of thing. So, that is what happens during a spill.

With regard to the question about what is being done to look at how you deal with contaminated sediment, I think what Dr. Rees has said is correct, certainly to my recollection.

One thing that the Water Resources Development Act does create, though, is it requires that an inventory of all ports on channels that are being dredged be conducted. It has to be completed sometime this next year and has to be redone every two years.

I suspect that that inventory, as all inventories seem to occur—once problems are identified, if in fact contaminated sediment is identified as a major problem in different parts of the country for different ports, I would suspect that the fires will start burning hard again to try to look at technologies where there is going to be a significant impact, but I do not know that, other than what Dr. Rees has indicated, there are any other technologies at this time to deal with those materials, but perhaps if, in fact, there appears to

be a significant problem, I suspect there will be greater emphasis and focus placed on that.

Mr. LAUGHLIN. Commissioner Mauro wanted to respond.

Mr. MAURO. Congressman, as you know, the General Land Office also runs an oil spill program for the Marine Gulf Coast, and we have had a lot of experience with contamination problems. Unfortunately, we have a few Superfund sites, et cetera, et cetera.

We have followed the reports Dr. Rees is talking about, about different technologies, and one promising technology for us is by remediation.

We have recently, Mr. Chairman, as you probably know, opened a bio-remediation testing facility with Texas A&M at Corpus Christi, the MSRC, the Marine Spill Response Corporation, with the Texas Water Commission, where we would replicate the type of dredged material and how contaminated it is and then test different products by remediation products and processes to find out which one worked, so that you would know—before you spend a lot of money, you would say, OK, we took this much of the contaminated soil, put it in a test protocol situation, and we tested these products, and it actually got rid of the contamination. There is no facility like it in the world.

We think, long term, particularly for long-term planning, that if you knew that this particular dredged material was contaminated, five years before you were ready to dredge it, you could come up with a process and a plan to clean it up as you went along.

We hope, Mr. Chairman, to create lots of jobs in Corpus Christi and make Corpus Christi a center for bio-remediation testing and the industry generally, and I think it will give the Corps some additional weapons in their fight to clean up contamination in the Gulf Coast and, in fact, for all marine situations.

Mr. LAUGHLIN. Dr. Rees and Mr. Rhoades, the reason that we are concerned about the lack of activity on beach nourishment, I cite you the Sargent Beach area, where, when I was a teenager in the late 1950's, there were five or six streets of houses on both sides of the street, and nothing was being done about the erosion.

Today, there are no streets and no houses left. In fact, all that has eroded away, and now we are down to where Colonel King and the Galveston district office, I hope, are out buying land to build a restraining wall, and that is a situation that went unchecked, uncorrected, and nothing was being done by anyone in Washington, D.C., until, early in my tenure there, Secretary Robert Page, a Texan, a graduate of Texas A&M, knew of the problem and, in an effort to help me represent the area, got a higher priority on paying attention to it.

If we do not do some beach nourishment of places, this other 367 miles of the Texas coastline are going to have similar problems, and beach nourishment has to be more cost-effective than this construction project that we have got going on down there, and that is the reason we are focused on it.

We do not want an emergency plugging of the Gulf of Mexico so that barges can come up, but too often, all of us in the public do not appreciate the value of the Gulf Intracoastal Waterway System.

I learned after I was on this Committee that one barge carries—you can call it petrochemicals, hazardous material, gasoline, whatever liquid you want to call it, but it carries the amount of hazardous liquid that it would take 158 18-wheel trucks to carry that same liquid product, and if you closed down the Intracoastal Waterway System and put each barge capacity in 158 trucks, those are trucks that are going through every community I represent on the Gulf Coast, because we do not have any freeways down there, and they are going by schools and they are going through the downtown area where people are working, and a lot of people live within a block of the main street, as I do in my own home town.

So, that is the reason we want to keep the Gulf Intracoastal Water System maintained, dredged, and preserve our beaches.

So, this hearing is important for you all to come down here and hear that, because you do not have time to go down to the coastline, but you would be shocked if you saw the comparative photographs in our area. Solomon has got some going on down in his end of the district.

So, this is an important topic, and I appreciate you being here, and I have more questions about the nourishment, but between the Chairman and between Congressman Green, they have asked you all, and I think we have gotten it to your attention, but if they are not serious about it in Washington, D.C., you all come whisper in the Chairman's ear or my ear, and we will invite them over or invite them to come down to Texas, because we are concerned, and we want some solutions.

We do not want that contaminated product out on our beaches, but we want to work with you to find solutions, and I would suggest the solutions that are under review down at the University of Texas A&M, University of Corpus Christi, in Solomon's district, in cooperation with Commissioner Mauro, are some of the solutions we need to consider.

Mr. Chairman, that is all I have.

Mr. ORTIZ. I would like to yield to Mr. Green for an introduction.

Mr. GREEN. Thank you, Mr. Chairman. We have a local elected official that I just wanted to recognize.

Our area, Harris County, is made up not just of the city of Houston but a lot of other communities, Galena Park and Pasadena and Bay Town and, of course, lots of smaller communities. We have a City Council member from the city of Pasadena who was just elected recently.

Bruce Walters is here, a City Councilman from Pasadena, who is on the south side of our Houston Ship Channel. We are glad you are with us. Welcome.

Mr. ORTIZ. That concludes the testimony for the first panel. I would like to thank both the Federal agencies and the Land Commission for coming here today and sharing their insights on Gulf port access. We are going to continue to work with you. Thank you very much for making time to be with us today. Thank you very much for your testimony.

I would like to introduce the second panel, but before I do that, for the sake of time, if you can adhere to the five-minute rule, we will introduce your entire testimony for the record.

I would like to introduce the second panel, which consists of representatives from the Port of Houston and other interested local port-related industries.

First, we will hear from Mr. Thomas Kornegay, Executive Director and Chief Executive Officer of the Port of Houston.

Then we will hear from Mr. Richard Gorini, Environmental Affairs Manager for the Port of Houston and Chairman of the Beneficial Uses Group.

Next we will hear from Jim Blackburn, Jr., who is with the Galveston Bay Foundation; then from Mr. Eddy Handley, the General Manager of the Port Terminal Authority; and last but not least will be Charles Shaver, Jr., a Marine Regulation Specialist with Dow Chemical.

First we will hear from Mr. Kornegay.

**STATEMENT OF H. THOMAS KORNEGAY, EXECUTIVE DIRECTOR  
AND CHIEF EXECUTIVE OFFICER, PORT OF HOUSTON AUTHORITY**

Mr. KORNEGAY. Thank you, Mr. Chairman and members of the Subcommittee, Congressman Green and Congressman Laughlin. We want to welcome you to Houston and thank you for committing the time and resources necessary to conduct this important hearing.

I am Tom Kornegay. I am the Executive Director at the Port of Houston. I also serve as President of the Gulf Ports Association and am the Gulf's Regional Representative on the National Dredging Policy Caucus. Next month, I am assuming the presidency of the Joint Ports Association, which represents ports on both the East Coast and the West Coast.

I will try to shorten my presentation to you, Mr. Chairman. I am submitting the written testimony for the record.

The Port of Houston, as has been stated earlier, is one of the very important ports on the Gulf Coast and, as a matter of fact, is one of the very important ports in the nation. It provides about 29,000 jobs here in the immediate area and over 110,000 jobs throughout Texas. We are the third-largest port in the Nation and eighth-largest port in the world. We have nearly 100 shipping lines calling on Houston, and those 100 ship lines cover 250 different world ports.

We have over 5,200 vessels calling in Houston every year. In addition, we have about 35,000 barges that navigate our waterway. Those combined vessels bring something on the order of 125 million tons in and out of the port every year.

We have, in the past, generated more than \$3 billion in revenues, in economic benefits for this area. Our success in moving that cargo and in moving that commerce is directly related to our port access. It goes without saying that maintenance dredging and channel improvements are essential elements to maintaining and enhancing port access. Our own experience in Houston underscores that point.

We have 52 miles of channel that's 40 feet deep and 400 feet wide, and as you have heard previously, we have had a project being studied for some time to widen and deepen our port. Reliable

studies have shown that the improvements to the channel will greatly enhance the safety of this important way, as well as provide significant economic benefits.

We have asked the voters of Harris County, and they have agreed with the need and the value of improving the channel, and they have committed significant local funding to support these improvements. In 1989, the Harris County voters approved by a two-to-one vote a measure that will provide local funding in the amount of \$130 million to deepen our channel.

In Houston and across the nation, the ports know very well that, despite documented need for channel improvements and community commitment of resources to support those improvements, the challenges confronting such a project are extremely large, and the American Association of Port Authorities has identified more than 30 Federal laws and executive orders regarding dredging and the disposal of dredged material.

In turn, this myriad of laws fall on the jurisdiction of a wide variety of Federal agencies, including the Corps, the EPA, the Fish & Wildlife Service, the National Marine and Fisheries, and others. This list does not begin to account for the corresponding State agencies which also play a role.

The fact is that no comprehensive, consistent approach for the Federal agencies to manage this process further compounds the logistical nightmare. The effects of the current approach are redundant review, excessive delay, and significant cost overruns.

Our Transportation Secretary, Federico Pena, has identified this situation as the national dredging crisis. According to Secretary Pena, dredging is submerged in conflicting missions and mandates and among a number of Federal agencies and a myriad of Federal rules and regulations, plus State law and government laws, which make it a miracle every time a port dredging project is brought to fruition.

A letter has been sent to President Clinton last week and was signed by over 30 national and regional groups vitally concerned about this dredging crisis. In that letter, it stated that neither our nation nor our ports can continue to depend on miracles, and we urge the President to support the National Dredging Policy proposal developed by the American Association of Port Authorities, and I have attached a copy of that letter to my testimony and hope that it would be made a part of the record.

Mr. Chairman, over 99 percent of the nation's international trade passes through our ports. In 1991 alone, this movement of cargo provided employment for about 1.5 million Americans.

The ports are essential also for the mobilization and deployment of our U.S. forces.

For example, in the Gulf war, our Barbours Cut Container Terminal was a primary point of embarkation for equipment and supplies for the U.S. war effort. As a matter of fact, Houston was the second-busiest port in loading and staging military cargo during that effort, including some 38,000 vehicles. Those military shipments included about 100 different vessels.

So, these economic and national security benefits are curtailed when port access is limited by inadequate channel depths or projects are delayed because of regulatory gridlock.

We believe that the National Dredging Policy that has been developed by the AAPA sets out the basic principles and concerns that need to be addressed to resolve our nation's dredge crisis.

We are encouraged that the Administration has also undertaken an important step at the request of Secretary Pena. The Department of Transportation has convened an Interagency Working Group, and that working group will review the dredging project approval process and identify ways to improve interagency coordination, critical criteria review, and sequencing of approvals, and we greatly appreciate Secretary Pena's commitment to successfully address the dredge issue.

The Port Authority joins with the other Gulf ports and the ports across our nation in endorsing the National Dredging Policy proposals and will be working with the AAPA and a broader coalition in 1994 to secure the support of the administration and the Congress in implementing these recommendations.

I can tell you, from our own personal experience, that the Port of Houston has faced challenges identified previously by myself and others for far too many years.

We have dealt with the myriad of laws and regulations under the jurisdiction of multiple State and Federal authorities, and we are pleased to share our experience with you, because we believe that there are positive lessons to be learned.

I would like to say that we have had a very good approach through the Interagency Coordination Team (ICT). It has been a wonderful effort in getting the Federal, State, and local agencies together to address the environmental interest. The Port's role includes active participation and direct financial support of these environmental initiatives.

We note with a certain pride that the DOT Interagency Working Group established by Secretary Pena includes each of the Federal agencies that has participated for the last three years in Houston's ICT.

One of the prime concerns the Interagency Coordination Team focused on was the Corps of Engineers dredged material disposal plan, particularly on the continued open bay disposal, unconfined disposal in Galveston Bay.

The willingness of the Port Authority to bear up to \$37 million in additional cost for development of beneficial uses of dredged material significantly expanded the Interagency Coordination Team's flexibility to address adverse environmental impacts originally associated with the project.

The Beneficial Uses Group was created as a subcommittee of the Interagency Coordination Team. That group has been named the BUG. Included as a part of the Beneficial Uses Group are the Corps of Engineers, Fish & Wildlife, Environmental Protection Agency, National Marine and Fisheries, U.S. Soil Conservation Service, Texas Parks & Wildlife, the General Land Office, and of course, the Port Authority.

Dick Gorini, the Port Authority's Environmental Affairs Manager, has already dedicated three years, and counting, to serve as the Chairman of the BUG, and if I may, Mr. Chairman, I would like to turn the rest of the presentation over to Mr. Gorini.

[The prepared statement of Mr. Kornegay and Mr. Gorini can be found at the end of the hearing.]

Mr. ORTIZ. Mr. Gorini.

**STATEMENT OF RICHARD GORINI, ENVIRONMENTAL AFFAIRS  
MANAGER, PORT OF HOUSTON, AND CHAIRMAN, BENEFICIAL  
USES GROUP**

Mr. GORINI. Thank you, Mr. Chairman.

The formally adopted purpose of the Beneficial Uses Group (BUG) was to develop a disposal plan for the Houston Ship Channel Widening and Deepening Project that utilized dredged material in an environmentally sound and economically acceptable manner that incorporated, to the extent possible, other public benefits into its design.

From the beginning, the BUG's efforts were guided by three basic principles:

(1) Dredged material is a potentially valuable resource and should be considered and treated as such.

(2) Development of an environmentally acceptable disposal plan would be intrinsic to the eventual approval of our project.

(3) Any disposal plan adopted must have long-term environmental benefits for the Galveston Bay system.

The approach utilized by the BUG for Galveston Bay makes this effort unique and precedent-setting. What we are attempting, in its totality, has never been done before.

(1) The BUG is an interagency group developing a preferred disposal plan, rather than reviewing a project in a regulatory and adversarial setting.

(2) The BUG is addressing one of the largest navigation projects in many years.

(3) The BUG is committed to the objective that the final plan would have a net positive environmental benefit over the life of the project.

(4) The BUG actively solicited beneficial use suggestions from Bay interests and user groups, whose collective ideas were given full consideration during the development of the recommended plan.

A great deal of attention was, in fact, devoted to this last element. We had a concerted effort to solicit input from a wide range of Bay interests and user groups. The process worked surprisingly well.

Participants had a number of thoughtful and feasible ideas on how the dredged material might be utilized, and there were far more suggestions for beneficial uses than the volume of dredged material that would be available from our project.

The fact is, in the end, the BUG had some difficult choices to make, and few would have predicted that happenstance at the outset.

For the undertaking to succeed, it was critical that a sound scientific and fact-based approach be taken. Of several, I would note three to you today.

(1) Sediment contaminant studies of the maintenance material were carried out under a separate ICT subcommittee, and the sediments were determined to be clean for beneficial uses.

(2) We carried out habitat productivity studies to determine the most environmentally appropriate locations. We were not going to sacrifice an existing productive habitat to try to build another.

(3) Analysis of dredging constraints and channel maintenance needs had to be taken into account to balance the environmental, engineering, and economic considerations in the plan.

As Mr. Kornegay noted, there was some extraordinary PHA support for this. (1) We provided dredging, engineering, and environmental expertise to the BUG who worked at the behest of the BUG; this has proven to be as valuable as any element in our plan.

(2) We conducted several hundred probings of the Bay bottom to determine general areas with the best conditions for locating the sites.

(3) We are constructing, right now as we speak, a 250-acre demonstration marsh to determine how to achieve the desired environmental results using both new work material and maintenance material, while using the typical dredge equipment likely to be used in the construction of the project.

There are a couple of pictures displayed of the marsh project and of the Beneficial Uses Plan for the Widening and Deepening Project.

(4) We are funding the National Marine and Fisheries Service to help us develop design criteria and parameters for constructing marshes.

(5) We have constructed a five-acre oyster reef in conjunction with the Houston Lighting and Power Company, National Marine and Fisheries Service, and a grant from the U.S. Environmental Protection Agency, using coal combustion byproduct to determine the large-scale feasibility of using non-native materials to establish oyster reefs. This, I might add, is also a Coastal America Project and a Galveston Bay National Estuary Program Action Demonstration Project.

In October of 1992, the ICT overwhelmingly adopted the Beneficial Uses Plan. This plan would provide almost 6,000 acres of marsh, together with bird islands, boater destinations, and shoreline erosion protection, and it would also ensure the maintenance of those enhancements over the continuing life of this project.

In short, the ICT concurred with the BUG that the plan, properly built and maintained, would have a net positive environmental effort on the Galveston Bay system. This plan is also consistent with the proposed Comprehensive Conservation Management Plan for the Galveston Bay Estuary Program.

Much work remains to be done. The plan has been adopted, but now we have to focus on actual design and construction elements, together with monitoring and maintenance agreements, even while we are still learning about lessons from the marsh.

Finally, the BUG and the ICT must address both the great interest that we have generated and the skepticism with which it has been greeted.

I would like to turn it back to Tom.

Mr. KORNEGAY. Mr. Chairman, in conclusion, let me say that we believe there is hope. We believe, in Houston, we are meeting the challenges through the coordinated efforts of the ICT and the BUG. We believe that the interagency approach can work.

It does require the involvement of all the affected entities and mutual acceptance of each other's stake and equity in addressing the issues and finding solutions to the problem, but we believe that our plan will work, and through those efforts, we hope to move ahead, and we want to again thank you, Mr. Chairman, for your help and your consideration and the fact that you have come to us to listen to our story.

Thank you, Mr. Chairman.

Mr. ORTIZ. Thank you very much.

Mr. Blackburn.

**STATEMENT OF JIM BLACKBURN, JR., ESQUIRE, TRUSTEE  
EMERITUS, GALVESTON BAY FOUNDATION**

Mr. BLACKBURN. Thank you very much, Mr. Chairman, Representatives Green and Laughlin. I am Jim Blackburn, and I am here representing the Galveston Bay Foundation, and we appreciate very much being asked to come and comment here today.

The Galveston Bay Foundation is a non-profit organization dedicated to the preservation and enhancement of Galveston Bay for its many uses. We have four issues we would like to present to you briefly.

The first is sediment quality. We believe that sediment quality in our coastal waters is a major unresolved issue, especially as it relates to dredging activities. There are currently no sediment quality standards by either the Texas Natural Resource Conservation Commission or EPA, and we think that is a real problem.

Within Galveston Bay, we have serious sediment quality problems. We have indications that there are heavy metals, dioxin, and petroleum hydrocarbons in the sediments of Galveston Bay.

A 1993 study by the United States Fish & Wildlife Service that evaluates sediment in fish tissue samples throughout the Bay system identified problems at seven of 16 sampling locations.

More recently, unpublished data has indicated sediment contamination upstream to the turning basin on the ship channel itself.

Further indication of the problem of sediment contamination is a seafood consumption warning for upper Galveston Bay and the ship channel because of dioxin contamination, a toxic chemical that is known for its affinity for sediments.

There is also an ongoing seafood consumption concern down the coast associated with mercury contamination in Lavaca Bay, and we think these are important indicators of consumer concern and that, in turn, I think emphasizes the importance of this sediment quality issue.

While more study and research would be useful, we think certainly proper management of spoil disposal is a major issue in the middle of this contaminated sediment issue.

With regard to disposal of dredged material, we are also happy to say that we think some good progress has been made in the Galveston Bay area with recent decisions by the Port of Houston to un-

dertake beneficial uses of new spoil disposal, rather than through open bay disposal of the past.

It is important to remember, however, that for a channel project to go forward, its economic benefits and viability must come from the project itself and not merely the popularity of the beneficial uses. Beneficial uses have emerged as a major concept, and we are highly supportive of it, but the channel itself and enlargement issues must stand on their own merit.

Port access to our inland ports still poses the recurring issue of maintenance dredging, and we would simply ask that maintenance dredging beneficial uses also be addressed. The beneficial uses we are talking about here today are in association with a new channel project, and maintenance dredging, I think, is a major area that has not been adequately addressed with regard to beneficial uses.

We also have erosion problems along the Gulf Intracoastal Waterway. The plight of Sargent Beach was noted earlier, and I think all of you are familiar with whooping crane habitat down in the Aransas refuge area.

However, the Galveston Bay system is also beginning to have erosion problems on the Intracoastal Waterway, most notably with a breakthrough into Christmas Bay, which is our most pristine bay down near the Freeport area. It has been nominated as an outstanding natural resource water, and there is now, on high tides, on very high tides, overlap between the intracoastal and the bay system, and our worry is that there will be a full breakthrough.

So, we ask that these erosion issues get a priority along the Intracoastal Waterway for examination.

Finally, with regard to oil transport, many of our Galveston Bay problems seem to be driven by the absence of a cohesive national oil import strategy. A reduction in the volume of oil transported across the Bay would reduce the risk of oil spill and demands for channel enlargement. Without a national strategy, it is difficult to develop regional alternatives that make sense for the important petroleum and petrochemical component of the Galveston Bay economy.

The Galveston Bay Foundation is a consensual organization composed of environmental, recreational, and business organizations and others who are dedicated to the proposition of ensuring and sharing the resources of Galveston Bay.

We are committed to finding strategies to allow development without resource degradation and look forward to working with the Subcommittee in the future.

Thank you very much.

[The prepared statement of Mr. Blackburn can be found at the end of the hearing.]

Mr. ORTIZ. Thank you.

Mr. Handley, because our time is limited, you can summarize your statement, and we will allow for Mr. Green and Mr. Laughlin to ask questions right after your statement.

## STATEMENT OF EDDY HANDLEY, GENERAL MANAGER, PORT TERMINAL AUTHORITY

Mr. HANDLEY. Thank you. My name is Eddy Handley. I am the General Manager of the Port Terminal Railroad, and I want to thank you for being here and representing the railroads serving Houston.

Our railroad serves the upper half of the Houston Ship Channel, and we have approximately 150 industries up and down the ship channel that we serve, and we handle about a half-million cars a year.

We have over 400 employees, and in 1990 and 1991, during Desert Storm, we handled in excess of 32,000 cars.

The railroads serving Houston have had a long cooperative relationship with the Federal Railroad Administration, and as a result of this cooperative history, in November 1992, the railroads were selected as a site to develop and test the communications procedures between the railroads and emergency response personnel in the event of a hazardous material incident.

This project is called Operation Respond and is being jointly funded by the Houston Railroad and the Federal Railroad Administration. Its main goal is to enhance the ability of these emergency response personnel arriving at the railroad hazardous material incident to deal with the situation in a timely, accurate, and safe manner.

This system contains all the information needed to make the proper decisions when faced with hazardous material incidents. Operation Respond is attempting to put this information in the hands of people faced with making emergency response decisions.

In conclusion, I would like to thank you again, Mr. Chairman, for the opportunity to testify to the importance of the railroads to the Gulf Coast regions, and all that we have done and plan to do as a result of hard work and dedication by a talented group of people.

From a rail transportation point of view, Houston exemplifies the team approach, and we prove day in and day out we can get it done.

Thank you.

[The prepared statement of Mr. Handley can be found at the end of the hearing.]

Mr. ORTIZ. Thank you, sir.

Mr. Shaver.

## STATEMENT OF CHARLES SHAVER, JR., MARINE REGULATION SPECIALIST, DOW CHEMICAL

Mr. SHAVER. Thank you, Mr. Chairman, Congressman Laughlin, Congressman Green. I am Charles Shaver, and I am representing the Dow Chemical Company today.

In 1940, the Dow Chemical Company purchased 800 acres of land at the mouth of the Brazos River in Freeport, Texas, on the Gulf of Mexico. It was an ideal location due to its proximity to the Gulf, which provided for domestic and overseas shipping.

Today, Dow's Texas Operations is one of the largest chemical complexes in the United States and even the world.

Dow's marine facilities in the United States ship approximately 5.5 million tons per year by marine transportation. Out of that, about 4 1/2 million tons goes by barge.

Barges carry our products down the intracoastal canal to customers as far as Corpus Christi, eastward to the Louisiana Division, and inland up the Mississippi River and all of its tributaries.

Approximately 95 percent of global commerce is currently shipped by marine transportation. As global trading partnerships such as NAFTA and GATT and competitive markets increase this global commerce, we see efficient, safe, and cost-effective means of transportation becoming increasingly important. The significance of maintaining and improving and expanding our waterways and ports becomes more pronounced.

Just as safety and maintenance are important to maintain automobiles, trucks, highways, and railroads, our inland waterways and seaports require the same care. Our inland ports and waterways are often considered the invisible highways to most people.

This water transport system, as we have heard today, adds billions of dollars in revenues to our economy annually and creates millions of jobs. These invisible highways open our door to the rest of the world.

The commercial shipping industry has come a long way since the late 1800's, when schooners were about 180 feet long, 22 feet wide, and had about eight feet draft to the marine vessels that we are all seeing that are 750 feet long, more than 100 feet wide, and 45 feet draft.

Interestingly, few harbors or ports naturally have the deep facilities to handle ships of this size. Therefore, dredging is essential.

Without dredging, today's container ships could not use New York Harbor, with its natural depth of only 18 feet, nor could we transport goods on the Mississippi River, where at times certain sections are only six feet deep.

Maintaining and expanding harbors significantly improves safety and reduces the costs of shipping. Widening and dredging harbors and ports provides access to facilities, sufficient room for large vessels to maneuver, and in some cases even two-way traffic patterns.

Repeated studies have shown us and demonstrated that water transport of commercial goods is the safest means available to us, and new equipment, new traffic control, and ongoing maintenance of vessels are shining examples of how safety will continue to improve.

As proud environmental stewards, the employees at Dow believe it is essential to consider responsible approaches to dredging technology and the utilization of dredged materials.

We would like to see continuation and even expansion of combined industry, community, and government efforts to develop handling techniques and uses for dredged materials, innovations that consider ascetic, environmental, and economic consequences, are possible.

The United States' ports and waterways are world-competitive, safe, cost-efficient, and cost-effective. It is imperative that we continue to be, and through the concerted efforts of government, industry, and others working together, we believe that this can be achieved.

Thank you.

[The prepared statement of Mr. Shaver can be found at the end of the hearing.]

Mr. ORTIZ. Thank you, Mr. Shaver.

Now, at this time, I would like to yield to Mr. Green for questions.

Mr. GREEN. Thank you, Mr. Chairman. I really only have two, and I will be brief. I think some of the panelists heard the questions earlier, of the earlier panel, but let me first ask Mr. Handley, since his testimony is a little different from the beneficial uses and talking about the safety issue in Operation Respond that you talk about and the effort to close some of the grade separations.

In a few minutes, Congressman Laughlin and I will see one of the sites that we are talking about closing, a grade separation in Manchester where there are 11 tracks, and I know the Port Terminal Railroad, as well as other railroads around the country, are trying to eliminate these grade separations because of the concern.

We are not only concerned about the—like Mr. Blackburn talked about—the imported oil but also limit the opportunity for those injuries, and if you could just address, just as briefly as possible, the 25 percent you talk about of the 700 railroad crossings in the Houston Metropolitan Area, is that both Federal cooperation with—with both the Port Terminal and the city of Houston or Harris County?

Mr. HANDLEY. Yes, Mr. Green. That is in cooperation with all the governments, both city, county, Federal, and so forth, and what we are looking at is eliminating all the duplicate crossings, crossings half-a-block apart, crossings such as the one that you are talking about, Central Avenue.

A lot of people do not realize, but at Central Avenue, for instance, there are 31 trains a day, 1,088 cars or more carrying hazardous material that go across that crossing every day, plus about 3,800 to 4,000 automobiles every day.

So, the liability and the potential danger is definitely there, and that is one of the things we are trying to eliminate.

Mr. GREEN. Thank you. Congressman Laughlin also serves as a very able member of the Public Works Committee and also on Surface Transportation, and I am glad that he heard that testimony.

Let me ask now a general question about the beneficial uses, and again, I am only a new member in Washington, but I have kept up with the Chesapeake Bay issue, and I have mentioned to some of the Members in Congress that we have the Galveston Bay, and the comparisons, except for the size, are amazing, but we get so much attention to the Chesapeake, I think, because of the location.

Maybe if we moved Galveston Bay closer, we might see more Federal attention, but the beneficial uses that Mr. Blackburn talked about, the cooperative effort through the Beneficial Use Group and the things at the Port of Houston—and one thing, Tom, has the Port decided not to do any open bay disposal, uncontaminated disposal? Is it going to be all going through trying to work to beneficial uses? You said you had more people who wanted it than not. Is that possible?

Mr. KORNEMAY. Yes, Congressman Green, I believe so. We have developed a disposal plan through the BUG for the material from the project, the new project, and the maintenance dredging, as

well, over a 50-year period. The BUG has nominated more sites than—I think it is like three-to-one. Is that correct, Mr. Gorini?

Mr. GORINI. The public have identified them.

Mr. KORNEGAY. Excuse me. They went through a public process, and through that public process, there were more than three-to-one sites nominated for the material than we actually have material in this whole project. So, yes, what we are doing is beneficial uses with the dredged material, absolutely.

Mr. GREEN. Some of the frustration I think you and I have shared is the increasing cost to the local taxpayers for these projects. At one time, they were almost totally federally supported. Now it is almost a majority of local funding. Is that true? Can you give us those percentages?

Mr. KORNEGAY. Well, I got some new information today, Congressman. Dr. Rees told me a while ago that there is now a way for us to get 75 percent, I believe, of the beneficial uses cost paid for by the Federal Government. Until about 30 minutes ago, I did not know that, and we were concerned that we would have to pick up the whole tab for the beneficial uses.

As a matter of fact, three years ago, when we were going through this compromise plan and trying to find a way not to have open bay disposal in our plant, the port went forward with that bond election, and included in that bond election was \$37 million for the local sponsor in the beneficial uses plan.

So, I am hoping now that we can expand that, the beneficial uses, by the fact that we will get some Federal participation in that cost.

Mr. GREEN. Maybe even some beach restoration?

Mr. KORNEGAY. Could be.

Mr. GREEN. Thank you, Mr. Chairman. I know the time limit. I would like to ask questions of the other panelists, but I will submit written questions, if that is possible.

Mr. ORTIZ. That is what I will do myself. I have got some questions that I would like to ask, but I will submit them to you in writing, and you can respond to the Committee, and then we will share this information with the rest of the Committee members.

Mr. Laughlin.

Mr. LAUGHLIN. Mr. Shaver, I am familiar with the fact that you have been doing some work in Europe, some of it under the auspices of the UN or in cooperation with some of their activities.

What have the Europeans done? Not that they always do things right, but we are here to talk about looking for alternative ways to clean our environment and, at the same time, to take care of our transportation needs. Are they doing anything in Europe that we ought to consider or should know about?

Mr. SHAVER. Well, there are many initiatives that are occurring there, some of which we have been involved in.

In Holland, for instance, we have agreements there that have been reached between the Dow Chemical Company and the Dutch environmental authorities which provides for basically continuous dredging and continuous disposal.

This has worked out very beneficial to all. I think it has eliminated a great deal of redundancy that we have seen as far as costs

have gone and basically have satisfied the public, as well as the authorities.

Now, what I just have recently seen, two weeks ago, was in Germany. They ran into some very significant problems there with pollution, with contaminated sediments, and I saw a facility that was recently constructed in Hamburg basically to take the dredged materials, that which is harmful, and do a separation process, separating the solids and the liquids. That way, they can clean up the liquids and make these acceptable to put back into the harbor, and then the solids they take and basically condition these in a way that is satisfactory.

They had a major problem on a section of the river with the fact that it has suffered such heavy contamination since the end of World War II from the Eastern Bloc countries of heavy metals and solids that, to be truthful, they are in a dilemma, in some regards, as we are, on what to do with a lot of this.

Mr. LAUGHLIN. How are they resolving the problem in Germany? Have they reached a solution?

Mr. SHAVER. Not totally.

Mr. LAUGHLIN. I also would ask you, Mr. Shaver, if you could send a copy of the separation standards. It may be that it is not cost-effective. I do not know enough, but I have wondered why we cannot somehow separate the contaminants out, and I know engineers know how to do it, but at this time, it may be too expensive.

Mr. SHAVER. It is expensive, I do know that, and again, one of the things that they have there that, certainly on an intracoastal waterway, would be a barrier is the fact that they have a relatively small area, a harbor, but we have harbors, too, that this might apply to.

So, I will give you all the information I can from both Holland and Germany.

Mr. LAUGHLIN. Mr. Handley, as my colleague pointed out, I have another committee I serve on, and that is Public Works and Transportation. So, between it and this Committee, I am on the committees that have jurisdiction over every way you can move, except the railroads, which is your subject, and that is in, as you probably know, the Energy and Commerce Committee.

What I want to ask you about is your safety study, because on Public Works, we have had many hearings on truck safety, and we have had just as many on water safety, and in fact, we have had a lot of concern about transportation of hazardous materials, and that is why I get high-minded sounding about these 18-wheel trucks going through communities that I represent, and I would rather see it on the waterways, because we do not have any schools out there on the waterways, and we do not have any neighborhoods out there on the waterways, but are you in any way working with—and I heard you say the local governments, but are you working with the chemical companies? Are you working with other modes of transportation, the water transportation and the truck transportation industry?

Mr. HANDLEY. First of all, Mr. Laughlin, let me say this. I would rather see it on the railroad, rather than on water.

Mr. LAUGHLIN. I do not have any railroads around my hometown. So, I cannot put it there.

Mr. HANDLEY. So, as far as that, yes, I would like to see it more on the railroads, and at this particular time, this study started out as being rail-oriented. The success of this program has grown where now the Federal Railroad Administrator and Secretary Pena are very interested in looking at it and moving it into the other modes.

In fact, we have a proposal up now, Phase II, which will bring in a truck line, and if we can spread on to the other Gulf Coast communities, then we would move with the Coast Guard and Maritime, but at this point in time, in Phase I, it is a railroad-oriented program.

Mr. LAUGHLIN. Well, I would like to recommend—and it sounds like you are looking for support, and if you are, I am available, but I would like to recommend that, in any proposal, you include the Port of Freeport, the Dow Chemical Company complex—there is not only Dow, but there are about seven or eight other major worldwide chemical companies down in the Freeport complex—because it is not satisfactory, from my viewpoint, to have only one safety mode of transportation, even though it is the preferred one.

I think we ought to have a coordination, because if you have an emergency that you have to respond to, it may not always be rail. You may have a truck incident, you may have a water incident, and I would encourage that.

What would it take, one, to include—and I am biased here, because I happen to represent the Dow complex and the Freeport area. What would it take to include the Port of Freeport, the Dow Chemical complex, and the related industries there, in your study?

Mr. HANDLEY. Probably, Mr. Laughlin, a telephone call from you to Dow, because I have worked with Dow for the last 30 years in the railroad industry, and they are very safety-minded and are very cooperative in any kind of safety program you want to get into. So, I think just getting their attention will get Dow on-board.

Mr. LAUGHLIN. Would the safety study you are doing incorporate the truck transportation and the water transportation?

Mr. HANDLEY. Yes. The framework is going to be there.

Now, the funding, how Secretary Pena is going to fund it and so forth, will come later, but they have both committed that they are willing to work with this program. The Federal Railroad Administration came up with this program and approached the Houston railroads, and that is how it became oriented, and we brought Shell in from the chemical plants and so forth, but the success of this program has been tremendous, and I am sure, as soon as they can find out ways to budget it, that it will spread to the different locations, yes, sir.

Mr. LAUGHLIN. Well, I do not want to totally ignore the Port of Houston, because they are important and they just cast a giant shadow over the Port of Freeport that I also represent, and I know, from conversations with the General Manager of the Port of Freeport, that there is a lot of interchange, transportation interchange between the two ports. From your viewpoint, would it be important to have both ports included in this safety study?

Mr. HANDLEY. Definitely, because there are lots of chemicals moved through the Port of Freeport, and I can assure you that,

speaking for Tom and myself, we would be more than happy to work with them.

Mr. LAUGHLIN. What is it that I have left out that you need to say to me about this study? Because when we have an emergency involving hazardous materials, it affects more than just the people at Shell or Dow or at the Port Terminal Railroad. It is community and, unfortunately, sometimes broader than community-wide involvement. What factors do we need to consider?

Mr. HANDLEY. The others factors—as you said—basically, whenever you have a hazardous incident, whatever mode of transportation, the community is very much involved. So, what we need is awareness, support for the programs, and your support and your vote in Congress.

Mr. LAUGHLIN. When we were doing the road transportation hearings on my other committee, there was concern about the appropriate emergency responders being trained to respond to a particular hazardous material, and in some instances, the responder would get there and would be totally unaware, for a lack of information from the transporter, whether it is the railroad or the truck, or from the shipper, whether it was—and in this instance, it was not Dow or Shell, but I am going to use them.

Are you looking at identification and identification methods on how to tell the emergency responder what he or she is going to be dealing with when they arrive at the incident site, and are you considering in your study any way to train the emergency responders on what they are dealing with?

Mr. HANDLEY. Yes, we are. In fact, our goal is, if you were the emergency responder, you would know the chemical that you had in hand, what to do with it if it was on fire, what to do with it if it is not on fire, personal protection, environmental considerations, and first aid responses and so forth, to have it, within minutes, in your hand, and yes, training is going to be involved, how do you train the emergency responder to use this information when he gets there, and these are the programs that we are looking at.

Mr. LAUGHLIN. Thank you.

The Chairman has told me I am out of time. I just want to say, Mr. Chairman, I have known Jim Blackburn for many years. I have been on the same side of lawsuits with him, I have been on the opposite side of lawsuits with him, and I would prefer to be on the same side, but Jim, thank you for your input. It is valuable, the topic areas that you hit on. I wish we had more time to deal with them; they are important, and I think, at least on this side of the table, we recognize that, and Mr. Chairman, I think Jim could be a resource for us when we take up some of these oil import problems that we have worked on in the past.

Mr. ORTIZ. Feel free to—this is Sheila McCready; she is the Staff Director, and we have a number of staff people here—to write to us and tell us about your problems, because we want to work for you, and we are happy that, in the Merchant Marine and Fisheries Committee, we have four Texans.

We have Mr. Jack Fields, who is the ranking member of the Full Committee and, of course, outstanding members here in Mr. Green and Mr. Laughlin, and myself, being from Corpus Christi. We more or less have similar problems.

At this time, let me yield to Mr. Green.

Mr. GREEN. Thank you, Mr. Chairman, and I just want to thank both panels this morning, and the Port of Houston, the Port Terminal Railroad, and I did not get to ask Jim Blackburn the question about contaminated sediments, but I know there are some experts that the Port has. So, I will be sending questions that talk about that, because I know the separation that Congressman Laughlin asked about—we want it widened and dug, and we want to make sure we can have some double wins on it. Thank you.

Mr. ORTIZ. Thank you. This concludes our testimony. This has been a very interesting hearing, interesting testimony. We want to continue to work with you.

I thank Mr. Green and Mr. Laughlin for joining us today at the request of Mr. Green. That is why we are here.

I would like to thank the Galena Park High School and their officials for their help in putting this hearing together.

Of course, the staff members, thank you very much.

This concludes our hearing. Thank you very much, and stay in touch with us, OK?

[Whereupon, at 11:30 a.m., the Subcommittee was adjourned, and the following was submitted for the record:

DEPARTMENT OF THE ARMY  
OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY  
(CIVIL WORKS)

COMPLETE STATEMENT

OF

DR. MORGAN R. REES  
DEPUTY ASSISTANT SECRETARY  
PLANNING POLICY AND LEGISLATION

BEFORE THE

SUBCOMMITTEE ON  
OCEANOGRAPHY, GULF OF MEXICO AND OUTER CONTINENTAL SHELF  
COMMITTEE ON MERCHANT MARINE AND FISHERIES

U. S. HOUSE OF REPRESENTATIVES

PORt ACCESS AND MANAGEMENT AND DISPOSAL OF DREDGED MATERIAL

DECEMBER 13, 1993

INTRODUCTION

Mr. Chairman and members of the Subcommittee, I am pleased to be here today on behalf of the Department of the Army to discuss port access issues in the Gulf of Mexico, the management and disposal of dredged materials and the requirements of the Ocean Dumping Act. Accompanying me is Colonel James P. King, the Corps of Engineers Southwestern Division Commander.

My statement will address the Army's programs related to the overall management, disposal and regulation of dredged materials within our nation's navigable waterways, including ocean disposal. As requested I will provide the status of the Army's efforts related to Title V of the Water Resources Development Act of 1992 on contaminated sediments and amendments to the Ocean Dumping Act. I also will address specific issues, projects and activities related to port access, the Federal navigation system and the management and disposal of dredged material along the Texas Gulf coast.

I testified before your subcommittee on March 30, 1993 on this subject. My testimony reiterates the background of the issue of dredging and disposal of dredged material, adds discussion of developments since that time and responds to specific questions in the letter of invitation to this hearing.

ARMY RESPONSIBILITIES RELATED TO DREDGED MATERIALS

The Army administers a wide range of activities under its civil works program which play a critical role in the protection, management and development of our Nation's water resources. Two major activities directly involved in the management of dredged materials are the national regulatory program and our national dredging program for constructing and maintaining the Federal portion of the Nation's extensive navigation system of commercial channels, harbors and ports. While I have identified these two programs separately, they are interrelated and integrated closely. The Army, through its permit program, regulates the dredging and the disposal of dredged material into the aquatic environment. This is done under section 10 of the Rivers and Harbors Act of 1899, section 404 of the Clean Water Act (CWA), and section 103 of the Ocean Dumping Act. Although an Army permit is not required for activities under the national dredging program, the same requirements to protect the Nation's environment and our natural resources are applied before work is undertaken.

Because of the scope of these programs and their impact on the economy and the environment, the Army has maintained since 1973 an environmental research and development program to address ecological impacts related to the management of clean and contaminated sediments. The current focus of this research is on

highly contaminated sediments. It emphasizes chronic/sublethal effects and genotoxicity evaluations, cleanup and remediation of hot spots, risk analysis, endangerment assessments, treatment technology, and training. It is being actively partnered with the Environmental Protection Agency (EPA), the National Oceanic and Atmospheric Administration (NOAA) and the Department of Defense to combine technical expertise and to leverage R&D funding to ensure that critical areas of concern are addressed to the best advantage.

#### SCOPE OF DREDGED MATERIAL DISPOSAL PROBLEM

The Army's national dredging program totals about 300 million cubic yards of dredged material per year, on average. Of this total, one to four percent (3 to 12 million cubic yards) is considered contaminated to the extent it requires special handling. The national program includes the construction of new or the improvement of existing projects and the maintenance of the 12,000 miles of existing commercial channels and related harbors within the Federal navigation system.

To maintain the elements of the Federal navigation system that border the Gulf of Mexico, about 50 million cubic yards of dredged material are scheduled for disposal into the Gulf of Mexico in fiscal year 1994. The majority of this dredged material will result from maintenance of access to the Mississippi River and other elements of the Federal navigation system in southern Louisiana. Historically, about 6 million cubic yards of dredged material have been disposed of annually in the Gulf of Mexico from Texas projects. The portion of the Federal navigation system in Texas includes about 1,000 miles of channels and 28 harbors, mostly along the Gulf Coast.

In addition to the maintenance activities, the Corps is nearing completion of construction of the improvements at Freeport Harbor and the navigation and diversion features at the mouth of the Colorado River as it enters Matagorda Bay. We continue construction of the enlargements of Brazos Island Harbor and Brownsville Channel and are initiating the efforts to stabilize the Sargent Beach area to ensure continued operation of the Gulf Intracoastal Waterway through that reach.

We are also studying needed improvements or modifications at other projects. These efforts include the preconstruction, engineering and design efforts for deepening and enlarging the Houston Ship Channel and deepening the Galveston Channel. These continuing efforts involve the studies to address numerous environmental concerns that have been raised. The results of these studies will be incorporated in the development of the supplemental environmental impact statement for the project. This work is to be completed before we request construction authorization from Congress. The Galveston District is currently

scheduled to complete the draft supplemental environmental impact statement in February 1995. In addition, we have project review studies underway for several reaches of the Gulf Intracoastal Waterway from Port Isabel to the vicinity of Aransas Bay to address identified operational needs and environmental concerns.

#### REGULATORY REQUIREMENTS

The Army permits the non-Federal dredging of about 100 million cubic yards of dredged material across the nation each year. Many the permitted activities are related to maintaining or improving the non-Federal elements of the commercial navigation system.

Integrated into the requirements of the Federal dredging projects and the Army's regulatory program for non-Federal dredging is compliance with over 20 other Federal environmental protection and conservation statutes. Some of these statutes are the National Environmental Policy Act, the Endangered Species Act, the Coastal Zone Management Act, the National Marine Sanctuaries Program Amendments Act of 1992 and the National Historic Preservation Act. In addition, implementation almost always requires approvals under various state programs and regulations. In executing the programs, we work closely with the EPA, the U.S. Fish and Wildlife Service and various elements of NOAA. The processes for implementing the various programs are also designed to provide full involvement of state and local agencies and the public at large.

The two primary authorities under which the Army regulates the disposal of dredged material for activities in support of commercial navigation needs are section 404 of the CWA and section 103 of the Ocean Dumping Act. In coastal areas, there is a geographic jurisdictional overlap between the two authorities regarding the disposal of dredged material in the territorial seas, defined as the area three nautical miles seaward of the baseline. The baseline is generally defined as the line on the shore reached by the ocean during ordinary low tide. We have jointly agreed with EPA that the disposal of dredged material seaward of the baseline in the territorial sea would be regulated under the Ocean Dumping Act except that within the territorial sea, provisions of the CWA regarding State authorities continue to apply. Disposal of dredged material landward of the baseline would be regulated under section 404 of the CWA.

In evaluating proposals for dredging and disposal of dredged material, a determination is made whether the dredged material may be contaminated and requires special handling. The testing required under the Ocean Dumping Act is accomplished utilizing a manual developed by the Corps and EPA, entitled, "Evaluation of Dredged Material Proposed for Ocean Disposal - Testing Manual," commonly called the "Green Book". The Green Book provides for a

progressive effects-based testing procedure. A similar testing manual, patterned after the Green Book, is currently under development with EPA for the evaluation of proposals for disposal of dredged materials under section 404 of the CWA. The proposed manual is currently being revised to incorporate review comments from Corps and EPA field elements. We expect to publish the proposed manual in the Federal Register for public comment in the Spring of 1994 with publication of a final manual in the Fall of 1994.

The Inland Testing Manual will provide guidance for the evaluation of proposals for the disposal of dredged materials under section 404 of the CWA that is consistent with that for ocean disposal. These evaluation requirements are applied to all dredging or dredged material disposal activities, whether they are to improve or maintain an element of the Federal navigation system or are to improve or maintain those non-Federal elements of harbors, ports or navigational channels that are integral to or dependent on the Federal navigation system.

Title V of the Water Resources Development Act of 1992 included some significant provisions related to the assessment and management of contaminated sediments, including amendments to the Ocean Dumping Act. It clarified the responsibilities of EPA for certain activities under the Ocean Dumping Act and formalized the need to continue consultation on such activities that has been ongoing between the Army and EPA. The Army's consultation role is significant as a regulatory resource agency, as a member of the National Contaminated Sediments Task Force and in support of EPA in the development of disposal site management plans.

The Army is providing support to accomplish portions of Title V, such as the survey of contaminated sediment data required by section 503. These data are being supplied from information in existing dredged material databases. We understand that EPA is preparing to submit the survey results in accordance with the provisions of the statute. EPA is responsible for funding the participation of non-Federal members of the National Contaminated Sediments Task Force. Due to lack of budgeted resources to meet this need, the Task Force has not been formed. However, the Army has designated a representative from the Office of the Assistant Secretary of the Army for Civil Works to serve when the Task Force convenes. The Army and EPA intend to develop a report which outlines on-going activities and programs related to contaminated sediments and provide it to Congress in accordance with section 502. As leadership for implementation of the provisions of Title V was vested in the Administrator of the EPA, I would defer to EPA on the complete status of activities. We believe that the Army has adequate resources to carry out its responsibilities under Title V.

INTERAGENCY WORKING GROUP ON THE DREDGING PROCESS

A major step forward in management of dredged material since your previous hearing is the formation of an interagency working group on the dredging process. The group has been formed with Army's full support by Secretary of Transportation Federico F. Pena, and includes representation at the Assistant Secretary or Deputy Assistant Secretary level of the Department of Transportation, Army, EPA, Department of Commerce and Department of Interior. The purpose of the group is to examine the strengths and weaknesses of the existing process and to prepare a report and recommendations for improvements to the process by July 1994. An interagency agreement to this effect was signed recently. A copy of the agreement is appended to my testimony. We are enthusiastic about the prospects of identifying systemic problems and finding creative solutions that will break the gridlock that all too often accompanies dredging projects.

IMPROVING MANAGEMENT OR REMEDIATION OF CONTAMINATED SEDIMENTS

As I noted earlier, the Army has a long-term research and development program focused on dredging and dredged material disposal. This effort has included: enhancement of basic knowledge of dredged material; identifying ecological impacts of dredging and dredge disposal activities; and evaluation and improvement of management strategies and disposal alternatives. While our ongoing research still includes efforts to improve management strategies for all dredged materials and evaluate alternative uses of dredged materials, the primary focus is on enhancing our ability to identify, assess, remediate and manage contaminated sediments.

The Corps research provides the scientific basis of our work with the EPA to classify sediments according to contamination potential and to regulate dredged material in a cost-effective and environmentally responsible manner. The ultimate objective of our research is to provide sound scientific information to help decision makers make more informed, timely and scientifically based decisions.

We continue to evaluate management processes and treatment technologies for contaminated sediments. Potential alternatives include control and containment options, full remediation of all contaminants, limited remediation of specific contaminants and management strategies that combine control, containment and remediation options. Costs for managing contaminated sediments will be significantly greater than costs of normal dredging operations, perhaps greater in cost by orders of magnitude.

A major cost in time and money for proposed activities is the assessment of potential contamination of the dredge material. Research is helping us reduce these costs by identifying less

expensive yet equally sensitive tests. One example is the use of biomarkers to determine the presence of dioxin in sediments. This has the potential to reduce the cost of analysis from over \$2,000 per sample to less than \$200. Research has also played important roles in determining potential contaminant pathways, bioaccumulation potential, leachate pathways from upland disposal areas, and potential impacts to endangered species, to name just a few examples.

Examples of containment and control options being evaluated for improvement or expanded use with both marginally and highly contaminated sediments are subaqueous capping and borrow pits for contaminated sediments, construction of confined disposal facilities and building of wetlands. Remediation technologies on which evaluation is continuing include: in situ vitrification, inline particle separation and pipeline injection, bioremediation, incineration, extraction, and thermal desorption. All these options require further study and prototype or full field scale implementation tests to verify effectiveness, implementability and economic viability.

#### BENEFICIAL USES OF DREDGED MATERIAL

The Army has informally employed the concept of beneficial uses of dredged material within its national dredging program for many years and as formal policy since at least 1968. A recent Office of Technology Assessment study reported that about 95 percent of the sediments dredged from coastal waters each year (about 150 million cubic yards for both Federal projects and permitted activities) are considered suitable for a wide range of beneficial disposal options. Traditional beneficial uses would include habitat development (wetland and upland); beach nourishment; strip mine reclamation and solid waste landfill cover; shoreline stabilization and erosion control; and construction aggregate and industrial use. More recent efforts have included the use of clean dredged material from a nearby Federal or permitted project to cap contaminated material outside the navigation channel.

Army authority for beneficial uses of dredged material was originally limited to projects incidental to maintenance or construction and where there was no increase in cost to the Federal project or where the local sponsor would pay the increment of increased cost. Section 145 of the Water Resources Development Act of 1976, as amended, authorized beneficial uses of dredged material for placement of material on beaches. This authority, justified primarily as hurricane and storm damage reduction, requires that the beach remains in public use and that a non-Federal sponsor provides 50 percent of incremental costs. Section 1135 of the Water Resources Development Act of 1986, as amended, provides further authority for beneficial uses of dredged material. Finally, based on an initiative from Army,

section 204 was included in the Water Resources Development Act of 1992. It allows the Army to participate in projects to use dredged material for aquatic habitat and wetland creation, restoration and protection. The incremental cost of the beneficial use must be shared 75% Federal and 25% non-Federal. Any operation, maintenance, replacement and rehabilitation costs are 100% non-Federal. The authority is applicable to the construction, operation, or maintenance of an authorized Federal navigation project. There is a \$15 million annual appropriation limit on the authority and \$3 million was included in the Fiscal Year 1994 appropriations. The Army and EPA have been working with interested states and others to address some of the issues associated with beneficial uses of dredged material.

In the Texas coastal areas, the Corps has two section 1135 project efforts underway. The project known as the Salt Bayou, McFaddin Ranch Wetlands is designed to restore historical salinity conditions to a 60,000-acre wetland area adjacent to the GIWW. It has been approved and construction is scheduled to begin in the Summer of 1994. The other project is a proposed demonstration effort in the Laguna Madre. It is designed to evaluate the viability of planting seagrass onto freshly deposited dredged material to help restore the estuarine ecosystem. The project schedule is dependent on maintenance dredging of the GIWW in the vicinity of Laguna Madre, which is presently scheduled between April and June 1994. After the dredged material has been allowed to consolidate a month, seagrass planting would begin. Data collection would continue through the fall of 1995. After data analysis, a report on the results would be prepared by May 1996.

Our present research activities concerned with the beneficial use concept are examining the possibility of using at least marginally contaminated dredged material for wetlands habitat development. This effort is being carried out in the Times Beach confined disposal facility at Buffalo, New York and at the Corps/EPA field verification site at Bridgeport, Connecticut. Both sites are currently being evaluated to document migration of contaminants into biota. While wetland plants do not appear to be contaminated on these sites, the animals do. The use of marginally contaminated material appears to be a viable technology. However, the level and type of contamination need to be defined. Further demonstration should be conducted prior to widespread application.

#### CONTROL OF CONTAMINATION

The economic well being of this country will continue to depend on the effective functioning of the Federal navigation system and those non-Federal elements that are an integral part of the system. This will require continued dredging of sediments in a cost-effective and environmentally responsible manner,

including those sediments determined to be contaminated. We continue to identify new sources of contamination and refine the level at which contaminants are considered to pose a threat to human health or the environment. As the contamination in sediments generally originates from other sources, a key is the control of such contamination at its source. It is not equitable to require the commercial navigation industry to solve the problems of pollution caused by others. If the discharge from a permitted upland source is meeting applicable standards, but special handling is required for disposal of dredged material rendered undesirable by this permitted source, it seems the originator of the pollution has some continuing responsibility to pay special handling costs to dispose of the dredged material.

#### CONCLUSION

The Army continues to execute its responsibilities for regulating the dredging and disposal of dredged materials into the aquatic environment and maintaining the economic viability of the Nation's commercial navigation system in an environmentally sound manner. We will work closely with Congress, EPA and other Federal agencies, state and local agencies and the public at large to address national and regional issues and objectives. Solutions to many of the issues related to needed dredging and disposal activities require the long term commitment of resources and the willingness of all involved parties to work for the common good.

*TESTIMONY OF  
RUSSELL F. RHOADES  
DIRECTOR, ENVIRONMENTAL SERVICES DIVISION  
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 6  
OVERSIGHT HEARING  
ON THE MANAGEMENT AND DISPOSAL OF  
DREDGED MATERIALS IN THE GULF OF MEXICO  
BEFORE THE  
SUBCOMMITTEE ON OCEANOGRAPHY, GULF OF MEXICO, AND  
OUTER CONTINENTAL SHELF  
U.S. HOUSE OF REPRESENTATIVES*

DEC 13 1999

On behalf of the Administrator of the United States Environmental Protection Agency, Carol Browner, I, Russell F. Rhoades, Director of the Environmental Services Division, EPA Region 6, am pleased to appear here today to discuss port access in the Gulf of Mexico, and the management and disposal of dredged materials. We commend the subcommittee for your interest and welcome the opportunity to highlight our regulatory and legislative responsibilities and ongoing coordination and planning activities affecting port access in the Gulf of Mexico.

#### **INTRODUCTION**

Maintenance of the Nation's navigation system is essential for domestic and foreign commerce, navigation, and industrial development of the United States. Port access in Region 6 is sustained through maintenance dredging activities conducted by the U.S. Army Corps of Engineers.

The regulation of dredged material disposal within the waters of the United States and ocean waters is a shared responsibility of the Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (USACE). Two statutes principally govern dredged material disposal in United States waters. The Marine Protection, Research, and Sanctuaries Act of 1972 (MPRSA), also called the Ocean Dumping Act, is applicable to the waters of the Gulf of Mexico, and the Clean Water Act applies to coastal and inland waters.

## OVERVIEW OF MPRSA

The MPRSA regulates the transportation and dumping of all materials into ocean waters, as well as establishes requirements for monitoring and research. EPA has authority under Section 102 of MPRSA to designate ocean disposal sites. Site designation has two primary purposes: to minimize adverse environmental effects, and to minimize the interference of dumping activities with other activities in the marine environment. Site designation is meant to ensure that temporary perturbations in water quality are reduced to normal ambient levels before reaching any beach, shoreline, marine sanctuary, or geographically limited fishery or shellfishery. A permit is required for disposal of dredged material which will regulate the times, rates, quantities and methods of dumping at the site.

The USACE is required to use such sites for ocean disposal to the maximum extent possible. Section 102 of MPRSA requires EPA, in consultation with the USACE, to develop environmental criteria that must be complied with before any proposed ocean-disposal activity is allowed to proceed. Section 103 of the MPRSA assigns to the USACE the specific responsibility for authorizing the ocean disposal of dredged material. Though dredging and disposal activities conducted by the USACE on the Federal navigation system are not specifically permitted under the regulatory program, the USACE is required to apply the criteria developed by EPA relating to the effects of the disposal activity.

EPA has a major environmental oversight role in reviewing the USACE determination of compliance with the ocean-disposal criteria. If EPA determines ocean-disposal criteria are not met, disposal may not occur without a waiver of the criteria by EPA.

Municipal or industrial discharges are not permitted in Texas or Louisiana coastal waters, under the requirements of MPRSA. Material approved for ocean disposal in this region is composed of dredged material generated from the USACE civil works projects.

## TECHNICAL EVALUATIONS

The USACE and EPA jointly published a dredged material testing manual entitled Evaluation of Dredged Material Proposed for Ocean Disposal - Testing Manual, commonly referred to as the "Green Book." The environmental impact criteria developed by EPA are implemented through the use of this technical document.

The Green Book describes a tiered testing evaluation to assess the potential for dredged material to adversely impact the marine environment. The initial tiers (Tiers I and II) use existing information on the chemical and physical aspects of the dredged material, and relatively simple water column and benthic impact evaluations to determine whether there will be an adverse environmental impact resulting from the disposal of the dredged material. If the initial data are not sufficient to make a decision on the potential impact of the material, or results of the evaluations indicate there will be an impact, then successive tiers should be invoked.

In the advanced tiers (Tiers III and IV), biological tests are performed on sensitive marine organisms to determine short and long term effects of possible toxicity of the material. These results are compared to tests performed on a reference sediment. The reference sediment should reflect the ambient conditions that would exist in the vicinity of the disposal site, had disposal activities not occurred.

A similar updated manual for evaluation of discharges regulated under the Clean Water Act (CWA) is currently under development.

The USACE and EPA have jointly developed a consistent technical framework for evaluating dredged material management alternatives. The document is entitled Evaluating Environmental Effects of Dredge Material Management Alternatives -- A Technical Framework. Application of this framework will facilitate decision making across statutory boundaries of MPRSA, CWA, and the National Environmental Policy Act (NEPA).

The final joint technical framework has now been endorsed by both agencies and should reduce confusion by both regulators and the regulated community in all future evaluations.

#### SITE DESIGNATION, MANAGEMENT, AND MONITORING

The disposal of dredged material into ocean waters requires the use of an EPA or USACE designated ocean dumping site. Once a site has been designated, the placement of material at the site must be properly managed and monitored in order to protect the marine environment. Therefore, before an EPA site can be used, the USACE must provide supporting data to EPA demonstrating the material's compliance with EPA's Ocean Dumping Criteria. The 1992 Water Resources Development Act (WRDA) amendments to the MPRSA places an increased emphasis on the importance of site management and monitoring. WRDA requires that EPA and the USACE develop long-term site management plans, with opportunity for public comment. These plans will include baseline assessments of the environmental conditions at the site, special management conditions for the protection of the environment, and a program of water quality and sediment quality monitoring at the site. In addition, the statute provides that these management plans must be revised and updated at periodic intervals.

#### OVERVIEW OF CWA

Section 404 of the CWA requires EPA, in conjunction with the USACE, to promulgate Guidelines for the discharge of dredged or fill material into the waters of the United States, to ensure that such proposed discharge will not result in unacceptable adverse environmental impacts. Section 404 assigns to the USACE the responsibility for authorizing all such proposed discharges, and requires application of the Guidelines in assessing the environmental acceptability of the proposed action. Under the Guidelines, the USACE is also required to examine practicable alternatives to the proposed discharge, including alternatives to disposal in waters of the United States and alternatives with potentially less damaging consequences. EPA is responsible for general environmental oversight under Section 404 and, pursuant to Section 404(C), retains veto authority. Under Section 401, the States certify that the project will comply with applicable State water quality standards.

## OVERVIEW OF NEPA

Dredged material disposal activities must comply with the applicable NEPA requirements regarding identification and evaluation of alternatives. The basic NEPA process discussed is specifically associated with the dredging project (as opposed to ocean-site designation, which may require an entirely separate NEPA process).

Section 102(2) of NEPA requires the examination of reasonable alternatives to the action proposed by the lead agency. Also, the NEPA document (Environmental Impact Statement (EIS) or Environmental Assessment (EA)) must rigorously address reasonable alternatives.

For civil works projects, the USACE is responsible under NEPA for developing alternatives for the discharge of dredged material, including all facets of the dredging and discharge operation, including cost, technical feasibility, and overall environmental protection. USACE regulations provide that the preferred alternative must be the least costly plan that is consistent with environmental statutes, as set forth in the National Economic Development (NED) Plan for new work projects. Compliance with the environmental criteria of the MPRSA and/or CWA Section 404(b)(1) Guidelines is the controlling factor used by the USACE in determining the environmental acceptability of disposal alternatives.

EPA's environmental review program is conducted pursuant to Section 102(2)(c) of NEPA and Section 309 of the Clean Air Act. These laws establish EPA's responsibilities to review and comment upon the "environmental impact of any matter relating to EPA's duties and responsibilities." Under this authority, EPA may choose to review and comment on EISs, EAs and other proposed Federal actions. EPA comments on NEPA documents are advisory, but by USACE policy, are given great weight. In cases where EPA and the USACE cannot resolve differences, the dispute may be elevated.

Under the CWA and MPRSA, Public Notices are the formal mechanism by which EPA concurs or nonconcurs with a recommended action, whether it is a proposed permit or USACE activity. Under the CWA, a 404(q) elevation and/or 404(c) veto of

a permit may be undertaken by EPA if differences between the agencies cannot be resolved at an earlier stage. Under the MPRSA, if EPA determines that the criteria are not met, the proposed action cannot proceed unless a waiver is granted by EPA.

Often, the NEPA evaluation of the overall project may be adequate, but program specific information (e.g., sediment testing results and site monitoring results) may need updating. Such updates may be accomplished by an EA and Finding of No Significant Impact (FONSI) and/or by revision of the 404(b)(1) or 103 evaluation, rather than the reopening the original EIS. It is recommended that these revisions always be coordinated with EPA.

#### BENEFICIAL USE AS AN ALTERNATIVE DISPOSAL MANAGEMENT OPTION

Alternatives for management of dredged material from these projects must be carefully evaluated from the standpoint of environmental acceptability, technical feasibility, and economics.

Dredged material is a manageable, valuable soil resource. It is now the policy of the USACE to fully consider all aspects of dredging and disposal operations with a view toward maximizing public benefits. Integral to this analysis is a requirement to provide full and equal consideration to all practicable dredged material disposal management options, including beneficial uses of dredged material.

The first step in assessment of beneficial use alternatives is to identify the local needs and opportunities for beneficial use. This may involve surveys of activities which may need material with certain characteristics, or surveys of needs for certain sites. Likewise, if the dredged material from a project is known to have desirable characteristics for a number of beneficial uses, then a survey of potential opportunities for use of that material or specific placement sites should be made. General categories of beneficial uses include: habitat restoration/enhancement, beach nourishment, wetland creation, barrier island restoration, underwater feeder berms, public recreational benefits, and aquaculture/mariculture enhancement.

Whenever the dredging cycle and the beneficial use needs have been found to

coincide, beneficial use of dredged material should be considered as a dredged material disposal management option.

Authorities and constraints related to the beneficial use of dredged material are in a state of change. Provisions in the WRDA of 1990 have now assigned the COE new authorities to pursue high-priority fish and wildlife restoration projects where such projects can most efficiently or appropriately be accomplished in conjunction with existing or planned navigation projects. In addition, this legislation has assigned such projects equal mission status with navigation and flood control projects of the USACE. Therefore, future beneficial use applications may, on a case-by-case basis, be the preferred alternative for navigation project. EPA shares these views and encourages USACE to select management alternatives that support beneficial uses.

#### **MANAGEMENT OF CONTAMINATED SEDIMENTS**

The contamination of sediments in water bodies of the United States has emerged in recent years as an ecological and human health issue. Contaminated sediments can have an impact on aquatic life by making areas uninhabitable for benthic organisms, and they can affect fish and wildlife by contributing to the bioaccumulation of contaminants in the food chain.

Contaminated sediments may make it difficult to dredge and dispose of sediments to maintain navigational channels. Where contamination exists, dredging can result in resuspension of contaminated material which may then become more available to aquatic organisms. Special control techniques may be necessary to prevent this. Disposal of contaminated dredged material requires locating a secure site, either on land or offshore, where large amounts of contaminated material can be safely contained.

In 1989, the EPA formed an Agency-wide Sediment Steering Committee to address the problem of contaminated sediments on a national scale. An Agency-wide contaminated sediment strategy is being prepared which will define the extent and severity of sediment contamination and describe specific actions which are needed to

bring about consideration and reduction of risks posed by contaminated sediments.

The most recent legislation addressing contaminated sediments is the Water Resources Development Act (WRDA) of 1992. WRDA calls for the establishment of a National Contaminated Sediment Task Force, including representatives from the National Oceanic and Atmospheric Administration, the U.S. Fish and Wildlife Service (F&WS), the U.S. Geological Survey, U.S. Department of Agriculture, States, ports, agricultural and manufacturing interests, and public interest organizations.

WRDA requires that a comprehensive inventory of national data regarding aquatic sediment quality be completed within 24 months of the enactment of WRDA. Existing information on the quantity, chemical and physical composition, and geographic location of pollutants in aquatic sediment, including the probable source of such pollutants, will be included. WRDA requires that the inventory be updated every two years.

EPA is developing sediment quality criteria for the protection of benthic organisms. Proposed criteria have been developed for five chemicals: acenaphthene, dieldrin, endrin, fluoranthene, and phenanthrene. These criteria will be made available for public review in the Federal Register by mid-1994. EPA will publish the documents in final form after considering public comments.

Development of sediment quality criteria is an active research effort by EPA. It is anticipated that, over the next ten years, the criteria will be integrated in our assessments of sediment quality.

#### **RESOURCES FOR THE MANAGEMENT OF DREDGED MATERIAL**

Proper management of dredged material disposal is important for the protection of our aquatic resources. MPRSA, the CWA, and the requirements set forth under WRDA are all essential elements for proper disposal management. No additional resources have been appropriated, thus it may be difficult to achieve the deadlines for site designation, development of site management plans, and conducting more intensive monitoring required under WRDA.

The ocean disposal of dredged material is regulated at the national level principally by the EPA and USACE. EPA has focused its resources on designating suitable sites and development of state-of-the-art dredged material evaluation procedures, with limited resources devoted to comprehensive site management reserved for high priority areas (e.g., ecologically sensitive areas, and dredged material from urban, industrialized harbors).

#### THE HOUSTON-GALVESTON, TEXAS NAVIGATION PROJECT

In 1967, the United States House Committee on Public Works authorized the USACE to conduct a Galveston Bay Area Navigation Study for Galveston Bay, Texas. As a result of the navigation study, the USACE recommended enlargement of the Houston Ship Channel from its current dimensions of 40 foot deep and 400 feet wide to 50 feet deep and 600 feet wide. The USACE's National Economic Development Plan called for the unconfined disposal of 92 million cubic meters of dredged material as a result of new work and 145 million cubic meters of maintenance material onto approximately 4455 hectares of Galveston Bay bottom. The USACE's proposal was not well received by the Federal/State resource agencies or the public.

In response to concerns regarding the plan, the Port of Houston Authority (PHA), the local sponsor for the Houston Ship Channel project, obtained approval of a bond issue in 1989 to fully fund the life cycle cost of the project. This plan limited all dredged material disposal to beneficial uses, confinement, and offshore placement.

In 1990, the Assistant Secretary of the Army of Civil Works directed the USACE to perform additional environmental studies and prepare a Supplemental EIS for the locally preferred plan and ship channel deepening and widening project and to create an Interagency Coordination Team (ICT) to improve coordination and communication among the Federal and State resource agencies, the project sponsor and the USACE.

Through subsequent negotiations among the Assistant Secretary of the Army, the Corps, and the resource agencies, an agreement was reached that the

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environmental studies would be completed and incorporated into a Supplement to the Final EIS prior to seeking construction authorization from Congress. It was further agreed that the project and the EIS be divided into two phases. The first phase would deepen the ship channel from 40 feet to 45 feet and widen it from 400 feet to 530 feet.

The 1125-feet wide Galveston Navigation Channel would be deepened to 45 feet. Phase two for both channels would deepen the ship channel to 50 feet and widen it to 600 feet. Engineering and design work would continue along with the environmental studies.

The Supplemental EIS was originally scheduled for completion in September 1993, with Congressional authorization scheduled for November of 1994. Phase I of the channel construction would be completed by October 1995.

However, further engineering and economic analyses by the Galveston District COE indicated that the 50-foot project was no longer cost effective. Delays presented by the hydrodynamic model caused a decision by the USACE to defer seeking authorization until 1996, thus delaying the completion of the Draft EIS until January of 1995 and construction of the 45-foot channel until October of 1997. Since January 1990, EPA Region 6, the Galveston District Corps of Engineers, Project Sponsors and State and Federal resource agencies continue to cooperatively participate in the ICT.

The overall objectives and benefits of establishing the ICT and the environmental studies program were identified early in the coordination process. They are as follows:

- \* The ICT would obtain extensive new scientific knowledge of Galveston Bay circulation and salinity patterns and redefinition of project induced environmental impacts to bay biota, especially oyster populations.
- \* The ICT would provide information for refinement of the project mitigation plan especially in the citing of artificial oyster reefs.

- \* The ICT would provide for the development of a locally preferred disposal plan which utilizes the beneficial uses of dredged material.
- \* The ICT would provide for the refinement of project ship channel design dimensions.
- \* The ICT would offer opportunities for the USACE, resource agencies and environmental interest groups to obtain an acceptable project that both protects bay resources and provides for environmentally sustainable development.
- \* The ICT would serve as a guide for future interagency coordination efforts on complex coastal projects.

ICT members include representatives from: the U.S. F&WS, the U.S. National Marine and Fisheries Service (NMFS), the EPA, the U.S. Soil Conservation Service (SCS), the Galveston Bay National Estuary Program, the Port of Houston, Galveston Wharves, Texas Parks and Wildlife, Texas General Land Office, Texas Natural Resource Conservation Commission, Texas Water Development Board, the Office of the Governor, and the USACE.

Scopes of work for eight environmental studies have been developed and agreed upon by the ICT. The studies include: hydrodynamic and salinity model study, ship handling simulation model study, benthic recovery study, beneficial uses of dredged material study, oyster model study, oyster reef studies, cumulative impacts study, and a contaminant study.

The USACE's Waterways Experiment Station (WES) at Vicksburg, Mississippi, is largely responsible for the hydrodynamic and salinity model, the ship handling simulation and the benthic recovery study. These and other studies are fully funded and are being implemented on schedule.

EPA presently serves on two ICT subcommittees: the Beneficial Uses Group and the Contaminants Study Group. The Beneficial Uses Group (BUG) is charged with the identification and evaluation of dredged material disposal ideas offered by the public and other resources agencies to help develop a locally preferred disposal plan.

This subcommittee will attempt to make maximum beneficial use of the material in Galveston Bay, including development of wetland areas, creation of bird islands, creation of shore protection berms, erosion control, and forming support for mitigation oyster reefs and destination islands for boating and recreational uses.

Beneficial uses for the dredged material disposal plan have been identified and a preliminary conceptional disposal plan has been developed for the initial iteration run of the three-dimensional WES hydrodynamic and salinity model. Preliminary results on existing Bay conditions were obtained using the USACE's CRAY computer in December 1, 1991. This initial run indicated the beneficial use areas being considered won't impact circulation patterns in the Bay. WES has prepared a draft animated color video of a seven day verification run of the hydrodynamic and salinity regimes of existing bay conditions. This will be a valuable tool for evaluating future conditions/potential impacts in the Bay with and without the navigation conditions.

The Contaminants Study Group is responsible for evaluating the ontaminant potential of project maintenance dredge material using tiered testing procedures of increasing sensitivity. Test results will determine suitability of the material for disposal options, including beneficial uses. Initial testing by the group in both the bay reach of the Ship Channel and in the Outer Entrance Channel within the Gulf of Mexico has indicated that the material is suitable for disposal.

As mentioned earlier, the NEPA requires that all Federal agencies proposing legislation and other major actions significantly affecting the quality of the human environment prepare a detailed EIS of the potential environmental effects. The Council on Environmental Quality (CEQ) has published regulations and associated guidance for implementing NEPA. With the completion of the ongoing environmental studies, the lead Federal agency, the USACE, has scheduled publication of a Draft Supplemental EIS for public and Federal and State agency review by March of 1995.

The Federal Register Notice of Intent to Prepare the Supplemental EIS appeared July 6, 1990. Eight NEPA scoping workshops have been held. The final scoping workshop was held on Mar. 14, 1991, and the comment period ended Apr. 13, 1991.

Under Section 309 of the Clean Air Act, EPA has a unique responsibility in the NEPA review process. Under this law, EPA is required to review and publicly comment on the environmental impacts of major Federal actions for which EISs are prepared.<sup>1</sup> If EPA determines the action is environmentally unsatisfactory, it is required by Section 309 to refer the matter to CEQ for deliberation.

With the ICT in place, and continued coordination among State and Federal resource agencies, we believe that the full range of environmental impacts have been identified. It appears that the USACE intends to address all major environmental issues associated with the ship channel improvement project and to mitigate unavoidable impacts where necessary. EPA's final views on the proposed navigation project will be based upon the environmental assessment information as presented in the Supplemental EIS.

## **CONCLUSION**

In summary, EPA will continue to protect the environment through implementation of its regulatory programs. Realizing the need for dredging and dredged material disposal operations, EPA will continue to coordinate closely with the USACE and other Federal agencies to ensure that our aquatic resources are preserved.

It is essential that EPA maintain full cooperation and an adequate level of participation in the Houston Ship Channel/ICT activities. We believe that this multi-agency/interdisciplinary approach is critical to the successful development of a navigation project of this nature and a beneficial uses dredged material disposal plan that will: (1) minimize adverse impact to productive bay bottom habitats, (2) maximize potential biological production, (3) be technically feasible; and (4) minimize cost.

The ICT is an excellent example of the beneficial use policy being implemented and factored into the earliest planning stages of a complex navigation project. EPA commends the USACE and ICT for their work on this project. Thank you.

**Testimony of  
Texas Land Commissioner Garry Mauro  
before the  
Subcommittee on Oceanography, Gulf of Mexico, and the Outer Continental  
Shelf  
House Merchant Marine and Fisheries Committee  
Houston, Texas  
December 13, 1993**

Chairman Ortiz. Members of the Subcommittee. Thank you for the opportunity to comment about the management and disposal of dredged materials.

As you know, Texas has 367 miles of Gulf coastline and over 1000 miles of shoreline. There is no question that Port access is essential to a healthy Texas economy. Just as important, however, are tourism, productive fisheries, secure property values, wildlife habitats and the environmental integrity of our Coast.

As Land Commissioner, I manage 20.5 million acres of state land, including about 4 million acres of coastal and submerged lands. Because of this responsibility, the Legislature charged the Land Office with developing a comprehensive coastal management program which addresses the above mentioned concerns and which meets the requirements for inclusion in the Federal Coastal Zone Management Program. Our goal is a plan that deals with all aspects of coastal management in ways that simultaneously protect the environment and promote economic development.

Dredging policies will be part of the Texas Coastal Management Program and the policies taking shape address the impact of dredging and the

impact of the dredged materials on Permanent School Fund Lands, on leasing, on coastal erosion, on the diminution of private property values, and on wildlife habitats.

By the same token, the policies taking shape aim at maximizing the beneficial use of dredges materials. Our first response to the Legislature's charge that we develop a coastal zone management plan was to conduct a series of public hearings and consensus-building workshops in communities along the coast. Virtually any and everyone with an interest in or concern about the coast attended: conservationists, scientists, port managers, representatives from the petrochemical industry, developers, commercial fisherman and shrimpers, recreational fisherman and private citizens.

It was truly a grassroots process, and one that we are continuing as the plan goes through its stages of refinement.

The series of hearings and workshops ultimately identified beach access and dune protection, protection of wetlands, and coastal erosion as the three most pressing problems coastwide. And erosion was number one.

We Texans love our beaches and actually seeing them disappear before our eyes is both a shock and a call to action.

Certainly, we are not unique. To varying degrees, erosion is endemic to any coastal area. But most of the coastal states are doing something about it, and have found that, in many instances, beach nourishment is a successful antidote. But Texas has only one completed nourishment project, a small expanse at Surfside and one other project just getting underway at Galveston.

In contrast, beach nourishment is a frequently used staple in the anti-erosion arsenal for California, Florida and a number of other seaboard states. Currently, Texas lags way behind in protecting and restoring one of our most basic resources and most cherished assets. Clearly, we need the Corps' help in making beach nourishment as much a part of our fight against erosion as it is in the rest of the coastal United States. And even more clearly, we need your leadership so we can equal the cooperation found in other parts of the country and preserve the environmental and economic treasure that is our Texas Gulf Coast.

Thank you. I'll be happy to answer any questions you might have.

TESTIMONY SUBMITTED  
TO THE  
OCEANOGRAPHY, GULF OF MEXICO  
AND THE OUTER CONTINENTAL SHELF SUBCOMMITTEE  
OR THE  
HOUSE MERCHANT MARINE AND FISHERIES COMMITTEE  
BY  
H. THOMAS KORNEGAY  
EXECUTIVE DIRECTOR AND CEO  
PORT OF HOUSTON AUTHORITY  
DECEMBER 13, 1993  
HOUSTON, TEXAS

Chairman Ortiz, Congressmen Green and Laughlin and members of the subcommittee, on behalf of the Port of Houston Authority, welcome to Houston and thank you for committing the time and resources necessary to conduct this important field hearing. I am Tom Kornegay, the Executive Director of the Port of Houston Authority. I also serve as President of the Gulf Ports' Association and as the Gulf's Regional Chairman of the National Dredging Policy Caucus. Next month I will be assuming the position of President of the Joint Ports' Association which represents both the East and Gulf ports. Joining me today is Dick Gorini, the Port of Houston's Environmental Affairs Manager. Mr. Gorini also serves as Vice-chairman of the Harbors and Navigation Committee for the American Association of Port Authorities. Most noteworthy, for reasons that will be explained in our testimony, Mr. Gorini serves as Chairman of the Beneficial Uses Group.

We believe the subcommittee has shown a great deal of foresight in focusing attention on the topic of the Gulf of Mexico Port Access. As you know, Mr Chairman, from your own Port of Corpus Christi this is an issue of great significance to employment and the economy of the entire region and one that all of the Gulf ports are vitally concerned about. For instance, here in Houston an estimated 29,000 people work in jobs that are directly related to Port of Houston activity and another 110,000 jobs are indirectly related to the Port's activity.

Thank you also for permitting the Port of Houston to testify about the challenges facing U.S. ports relative to dredging and dredge disposal and to explain how we in

Houston have addressed this challenge. We believe the Houston experience represents a unique and unprecedeted approach to address environmental interests and concerns regarding dredge material disposal anticipated from the proposed Houston Ship Channel widening and deepening project.

Before I discuss the broader policy issue concerns of dredging I want to introduce you to the facts and figures that are so important to understanding the Port of Houston and our experience with the Houston channel improvement.

#### **THE HOUSTON SHIP CHANNEL AND THE PORT OF HOUSTON**

It is no exaggeration to say that the Houston Ship Channel is one of the most important economic lifelines between our nation and the world. Houston's favorable geographic location provides easy access to the entire world business community through key ocean, land, and air routes. Nearly 100 shipping lines connect Houston with more than 250 world ports. Four major railroads provide cargo distribution throughout the United States and more than 160 trucking lines service the rest of the nation via the Texas and interstate highway system.

These factors have made the Port of Houston a preferred gathering and distribution point for shippers transporting goods to and from the Midwestern and Western United States.

We are proud to report that last year a total of 5,280 ships flying the flags of 77 different nations called on the Port of Houston. In addition, approximately 35,000 barges navigated the waterway. The combined cargo of these vessels exceeded 125 million tons.

Houston is already the leading port for trade with Mexico. With the recent approval of the North American Free Trade Agreement (NAFTA), we fully expect an ever increasing rise in the goods shipped to and from Mexico through the Port of Houston.

The Port of Houston is pleased to be the number one U.S. port in foreign tonnage and the third busiest port in total tonnage. It is the eighth busiest port in the world and generates nearly \$3 billion a year in revenues. Mr. Chairman, we are proud of the role the Port of Houston plays as a vital force in the commerce of the United States and the world.

Our success and the success of other Gulf ports in moving the commerce of our nation is directly affected by the essential issue of port access. It goes without saying that maintenance dredging and channel improvement are essential elements to maintaining and enhancing port access. Our own experience in Houston vividly underscores this point.

## THE NEED FOR HOUSTON SHIP CHANNEL IMPROVEMENTS

Although Houston is already one of our nation's busiest ports, we are also one of the narrowest deep draft channels. The 52 mile channel was last improved in 1966 when it was deepened to 40 feet and widened to 400 feet.

For reasons of safety, environment, and economics it is well recognized that the Houston Ship Channel is long overdue to be improved. The proposed improvements for the Houston Ship Channel would widen a 39 mile stretch of the channel from 400 to 530 feet and deepen it from 40 to 45 feet. A number of other Gulf ports, including New Orleans and Mobile are already at 45 feet and authorized to be deepened to 50 and 55 feet.

Reliable studies have shown that these improvements to the Houston Channel will greatly enhance the safety of this important waterway, as well as provide significant economic benefits. As you can imagine, the size and volume of ships and shipping patterns have dramatically changed to meet the increasing demands of world trade over the last 30 years. As I have already indicated, the Port of Houston is poised to take full advantage of the dramatic increase in trade as a result of NAFTA and we intend to maintain that posture by successfully improving the channel.

The voters of Harris County agree with the need and the value of improving the channel and have committed significant local funding to support these improvements. In

1989, Harris County voters approved by a two-to-one vote a measure that will provide the local funding (\$130,000,000) to deepen the channel to 45 feet and widen it to 530 feet. In addition, just last month, Harris County voters reaffirmed their commitment to the Port by approving the sale of \$150,000,000 in bonds to improve Port facilities. It is readily apparent that our citizens recognize the important contribution of the Port to our community and have devoted precious tax dollars to enhance access to the Port.

**THE CHALLENGES FACING HOUSTON AND OUR NATION'S PORTS  
IN ENSURING PORT ACCESS THROUGH DREDGING PROJECTS**

In Houston and across the nation, ports know all too well that despite documented need for channel improvements and community commitment of resources to support such improvements, the challenges confronting such a project are mammoth.

The American Association of Port Authorities (AAPA) has identified more than 30 federal laws and executive orders regarding dredging and the disposal of dredge material. In turn, this myriad of laws fall under the jurisdiction of a wide variety of federal agencies including the U.S. Corps of Engineers, EPA, U.S. Fish and Wildlife Service, National Marine Fisheries Service, and others. This list does not begin to account for the corresponding state agencies which also play a role in the process.

The fact that there is no comprehensive, consistent approach for the federal agencies to manage this process further compounds the logistical nightmare. The effects

of the current approach are redundant review, excessive delay, and significant cost overruns. Transportation Secretary Federico Pena has identified this situation as a national "dredging crisis". According to Secretary Pena:

"Dredging is submerged in conflicting missions and mandates and among a number of federal agencies and a pyramid of federal rules and regulations, plus state and government laws, which make it a miracle every time a port dredging project is brought to fruition."

A letter sent to President Clinton last week and signed by over 30 national and regional groups vitally concerned about this dredging crisis stated that "neither our nation nor our ports can continue to depend on miracles" and urged the President to support the National Dredging Policy proposal developed by the American Association of Port Authorities. Mr. Chairman, I ask that a copy of the letter and the AAPA National Dredging Policy proposals be made part of the record.

We all have a stake in resolving the quagmire that currently exists with regard to dredging projects. Well maintained access to our nation's deep-draft ports is essential to U.S. trade, economic development, and national security objectives. Over 99 percent of the nation's international trade passes through our ports. In 1991 alone, this movement of cargo provided employment for 1.5 million Americans. Ports are also essential to the mobilization, deployment, and resupply of U.S. forces. For example, during the Gulf War, the Port of Houston Authority Fentress Bracewell Barbours Cut Container Terminal was a primary point of embarkation for equipment and supplies for the U.S. war effort.

Houston was the second busiest port in the staging and loading of military cargo, including almost 38,000 vehicles. These military shipments accounted for 100 vessel calls.

These economic and national security benefits are curtailed when port access is limited by inadequate channel depths or projects are delayed because of regulatory gridlock. We believe the proposal for a National Dredging Policy that has been developed by AAPA sets out the basic principles and concerns that need to be addressed to resolve our nation's dredge crisis. In brief, the proposal requests that the Administration direct federal agencies to facilitate navigation dredging projects, and issue guidance to ensure uniform application of all relevant policies at the national, regional, and local levels. In addition, it recommends regulatory and statutory changes to the Clean Water Act and Water Resources Development Act that are needed to ensure prompt consideration of dredging permits and to establish a federal commitment to assure availability of suitable dredged material disposal areas. The details are set forth in the document we have entered into the record.

We are encouraged that the Administration has already undertaken an important step. At the request of Secretary Pena, the Department of Transportation has convened an Interagency Working Group. The Working Group will review the dredging project approval process and identify ways to improve interagency coordination, criteria review, and sequencing of approvals. We greatly appreciate Secretary Pena's commitment to successfully address the dredging issue.

The Port of Houston Authority joins with the other Gulf ports and the ports across our nation in endorsing the National Dredging Policy proposals and will be working with AAPA and a broader coalition in 1994 to secure the support of the Administration and Congress in implementing these recommendations.

We know that each of you are keenly aware of the importance of port access and urge you to support this initiative as it moves through Congress.

**COORDINATION AND PARTNERSHIP --**  
**THE PORT OF HOUSTON EXPERIENCE**

I can tell you from personal experience that the Port of Houston has faced the challenges identified above for far too many years. We have dealt with the myriad of laws and regulations under the jurisdiction of multiple state and federal authorities. We are pleased to share our experience with you because we believe there are positive lessons to be learned.

Publication in 1987 of a Final Environmental Impact Statement regarding the Houston Ship Channel project prompted a request for a Supplemental Environmental Impact Statement. At that time, it was agreed that an effort to seek congressional authorization of the project would be deferred to allow the time necessary to further examine several environmental issues.

For a number of years our project was (in the words of Secretary Pena) "submerged in conflicting missions and mandates among a number of federal agencies." A dire need existed for coordination and partnership among the decision making entities -- state, federal, and local -- in order to move forward in developing the project.

Finally, in 1990, an entirely new coordinated approach was developed. That is the year the Port of Houston Authority began working with federal and state agencies as part of an Interagency Coordination Team (ICT) in a cooperative effort to address environmental interests. The Port's role includes active participation and direct financial support of this environmental initiative.

The Interagency Coordination Team represents a broad and diverse range of environmental interests including: Environmental Protection Agency (EPA); U.S. Fish and Wildlife Service (USFWS); National Marine and Fisheries Service (NMFS); the Governor's office; Texas Parks and Wildlife Department (TPWD); Texas Water Commission (TWC); Texas General Land Office (GLO); Galveston Bay National Estuary Program; Texas Water Development Board; U.S. Corps of Engineers (USACE); U.S. Coast Guard; Soil Conservation Service; Port of Houston Authority; and Port of Galveston.

We note with a certain degree of pride that the DOT Interagency Working Group established by Secretary Pena includes each of the federal agencies that has participated for the last three years in Houston's ICT.

One of the prime concerns the Interagency Coordination Team focused on was the Corps of Engineers' dredge material disposal plan, particularly on the continuation of

open bay unconfined disposal practices in the Galveston Bay reach. The willingness of the Port Authority to bear up to \$37 million in additional costs for development of beneficial use of dredged material significantly expanded the Interagency Coordination Team's flexibility to address adverse environmental impacts originally associated with the project.

#### A. The Beneficial Uses Group (BUG)

The Beneficial Uses Group was created as a subcommittee of the Interagency Coordination Team. Included as part of the Beneficial Uses Group are: U.S. Army Corps of Engineers; U.S. Fish and Wildlife Service; Environmental Protection Agency; National Marine and Fisheries Service; U.S. Soil Conservation Service (SCS); Texas Parks and Wildlife Department; Texas General Land Office; and Port of Houston Authority. Dick Gorini, the Port's Environmental Affairs Manager, has already dedicated three years and counting to serve as chairman of the BUG.

The formally adopted purpose of the Beneficial Uses Group was "to develop a disposal plan that utilizes dredged material in an environmentally sound and economically acceptable manner that incorporates, to the extent possible, other public benefits into its design."

From the beginning, the BUG's efforts were guided by three basic principles:

1. Dredged material is a potentially valuable resource and should be considered and treated as such;
2. Development of an environmentally acceptable disposal plan is intrinsic to the eventual approval of this project; and,

3. Any disposal plan adopted must have long-term environmental benefits for the Galveston Bay system.

#### B. The Workings of the Beneficial Uses Group

The approach utilized by the Beneficial Uses Group (BUG) for Galveston Bay makes this effort unique and precedent setting. What was being attempted, in its totality, had never been done before.

- \* The BUG is an inter-agency group developing a preferred disposal plan -- rather than reviewing a project in a regulatory and adversarial setting.
- \* The BUG is addressing one of the largest navigation projects in many years. We were tasked to develop a beneficial use plan that would provide for the disposal of approximately 120 Million Cubic Yard (MCY) of new work material over several years of construction and provide capacity for up to 190 MCY of maintenance material over a 50 year period.
- \* The BUG is committed to the objective that the final plan would have a net positive environmental effect over the life of the project.
- \* The BUG actively solicited beneficial use suggestions from Bay interests and user groups whose collective ideas were given full consideration during the development of the recommended plan.

### C. Community Involvement

A great deal of attention was devoted to this element. There was a concerted effort to solicit input from a wide range of Bay interests and user groups.

- \* The BUG developed an information packet, supplemented by graphics and slides for meetings.
- \* A list of Bay interests, user groups and local government entities was developed and the information packets were mailed to them.
- \* Those groups expressing an interest were contacted and approximately 14 meetings were scheduled at their convenience over a six-month period. Several groups chose to provide written comments and suggestions.
- \* The meeting ground rules were simple:
  - Regardless of a group's position on the navigation project, assuming it were to be approved, what suggestions did they have on how and where the material might be used beneficially;
  - We would not use a group's name in any reports or discussions;
  - We wanted a small number (up to 20 participants) in a "kitchen table" discussion format; and,
  - We would only discuss beneficial uses of dredged material.

This process worked surprisingly well. Participants had a significant number of thoughtful and feasible ideas on how the dredge material might be utilized. There were

far more suggestions for beneficial uses than the volume of dredged material that would be available from the project plus 50 years of maintenance dredging. The fact is, in the end, the BUG had some difficult choices to make. Few would have predicted that happenstance at the outset.

#### D. Scientific Verification

For such an undertaking, it was critical that a sound scientific and fact-based approach be taken. These included:

- \* Hydrodynamic Salinity modelling;
- \* Analyses of physical characteristics of the new work material to be dredged;
- \* Sediment contaminant studies of the maintenance material. A separate ICT subcommittee carried out detailed studies and the sediments were determined to be clean for beneficial uses;
- \* Habitat productivity studies, by the National Marine Fisheries Service to determine the most environmentally appropriated locations for beneficial uses. We would not sacrifice an existing productive habitat to try to build another; and,
- \* Analyses of dredging constraints and channel maintenance needs to balance environmental, engineering, and economic considerations in the Beneficial Uses Plan.

E. Extraordinary PHA Support

In order to move the project forward, it has been necessary for the Port to assume significant additional costs and workload including responsibility for the following:

- \* Providing dredging engineering and environmental expertise to the BUG working at the behest of the BUG. This has proven to be as valuable as any element in the plan's success;
- \* Conducting several hundred probings of the bay bottom to determine general areas with the best bottom conditions for siting beneficial uses, relative to other environmental and engineering constraints;
- \* Construction of a 250 acre demonstration marsh (in process) to determine how to achieve the desired environmental results using both new work material and maintenance material while employing the typical dredge equipment that would be utilized for construction and maintenance of the actual navigation project;
- \* Funding of National Marine and Fisheries Service to assist the BUG in the development of design criteria and parameters for constructing ecologically functioning marshes; and
- \* Construction of a five acre oyster reef in conjunction with the Houston Lighting and Power Company, the National Marine Fisheries Service, and a grant from the US Environmental Protection Agency,

using coal combustion by product to determine the large scale feasibility of using non-native material for oyster cultch. This is also a Coastal America Project and a Galveston Bay National Estuary Program Action Plan Demonstration Project.

In October of 1992, the ICT overwhelmingly adopted the BUG Plan. This plan would provide almost 6,000 acres of marsh, together with bird islands, boater destinations, and shoreline erosion protection and ensure the maintenance of those enhancements over the continuing life of the project. In short, the ICT concurs with the BUG that this plan, properly built and maintained, will have a net positive environmental effect on the Galveston Bay system. It should also be noted that this plan is consistent with the proposed Comprehensive Conservation Management Plan for the Galveston Bay National Estuary Program.

Much work remains to be done. The ICT has adopted the BUG Plan, but the BUG must now focus on the actual design and construction elements together with the monitoring and maintenance agreements even as we are still learning and incorporating lessons from the demonstration marsh. Finally, the BUG and the ICT must address both the great interest and skepticism our efforts have generated.

## CONCLUSION

We believe that our experience with the Houston Ship Channel Project has provided valuable lessons for us locally and can offer some guidance to the larger issue of a National Dredge Policy.

The existing approach for permitting dredge projects involves working through the jungle of laws, rules, regulations, and agencies. The experience is one of redundant review and delay. All of this costs precious time and resources -- in some cases 20 years of effort and millions of dollars.

There is hope. In Houston we are meeting this challenge through the coordinated efforts of the ICT and the BUG. We believe that the inter-agency approach can work, but it requires the involvement of all affected entities and mutual acceptance of each other's stake and equity in addressing the issues and finding solutions to the problem. In addition, we recognize that the local sponsor must assert leadership and be prepared to commit the staff and economic resources necessary to get the job done.

We further believe that the Houston experience has implications for the broader national policy issue. If dredging and port access issues are viewed and treated as a national priority, the Houston experience can be duplicated all over the country.

Even as a national priority, effective implementation will require a "top-down" commitment to addressing the issues. Conversely, a "bottom-up" approach (at the local

or regional level) is necessary to resolve concrete problems.

Mr. Chairman, as I conclude, we would like to commend you, once again, for focusing on the vital issue of port access in the Gulf. While we have focused our testimony today on the role maintenance dredging and channel improvements play in port access, there are other issues, such as Coastal Zone Management and the Gulf of Mexico Protection Program, that have the potential to affect port access. As the president of The Gulf Ports' Association, I can tell you that the ports in our region welcome the opportunity to work directly with Congress. We hope that whenever issues of significance arise, you and your subcommittee will rely on us to assess the impact on ports and to work together on solutions.

There is one other issue being worked on in the Merchant Marine Committee which will assist in port access. We applaud the ranking member, Jack Fields and Congressman Laughlin who have been developing language which will expedite the removal of wreckage blocking navigation. Houston is all too familiar with the costs associated with accidents that close the channel to traffic. We urge the full support of the subcommittee when that legislation moves forward next year.

Mr. Chairman, the public port industry needs the help and understanding of Congress to continue success stories such as ours. We welcome your support of our industry's efforts to establish a National Dredging Policy which would aid U.S. public ports in keeping our federal waters open to navigation and, thus, to compete in the world market.

December 3, 1993

The Honorable William J. Clinton  
President  
The White House  
1600 Pennsylvania Avenue, N.W.  
Washington, D.C. 20500

Dear Mr. President:

The undersigned organizations believe our nation's deep-draft commercial navigation system is essential to U.S. trade, economic development and national security objectives. Consequently, we urge you to establish clear and consistent national policies that will ensure the timely and cost-effective dredging of our nation's ports.

We welcome your Administration's involvement with this issue as evidenced by your leadership in seeking to resolve the "mudlock" at the Port of Oakland. However, this is not just a Port of Oakland problem -- it is, as Transportation Secretary Federico Peña has said, a national "dredging crisis." According to Secretary Peña: "Dredging is submerged in conflicting missions and mandates and among a number of federal agencies and a pyramid of federal rules and regulations, plus state and government laws, which make it a miracle every time a port dredging project is brought to fruition."

We agree. But neither our nation nor our ports can continue to depend on miracles. We all have a significant stake in resolving these conflicts. The deep draft ports of our country handle over 99 percent of the nation's international trade -- nearly one billion tons of cargo annually worth nearly \$500 billion. In 1991, commerce generated by the movement of cargo alone provided employment for 1.5 million Americans. Cruise passenger operations at U.S. ports generated nearly one-half million more jobs. Contributions to the gross domestic product from cargo alone totalled \$70 billion.

Well maintained ports are also vital to our national security. Ports are essential to the mobilization, deployment and resupply of U.S. forces. For example, during the Gulf War, U.S. ports handled two-thirds of the military cargo -- approximately 2.3 million measurement tons -- bound for that mid-east theater of operations.

The Honorable William J. Clinton  
December 3, 1993  
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However, these economic and national security benefits are curtailed when port access is limited by inadequate channel depths or projects are delayed because of regulatory gridlock. Economic losses are suffered both at the local level, where dredging has not been able to take place, as well as the national level, as our national transportation system has not been able to operate at maximum efficiency and our trade opportunities are affected.

More than 90 percent of our ports require regular maintenance dredging. These ports are diverse -- they include our largest container ports, as well as other ports that principally handle such products as petroleum, steel, automobiles and fruit. Because many U.S. export commodities -- grain, coal, and forest products, to name a few -- face tough competition around the world, even marginal transportation cost increases affect their marketability and, consequently, the nation's balance of trade. It is clear that dredging, whether to maintain existing depths or to deepen channels to meet the demand of the next generation of ocean carriers, is as essential to our nation's commerce as maintaining and improving our highways and railroads.

As a result the American Association of Port Authorities has developed "Open Channels to Trade -- A Proposal for a National Dredging Policy" (attached). We believe this proposal sets out the basic principles and concerns that need to be addressed to resolve our nation's dredging crisis. This proposal requests you to direct federal agencies to facilitate navigation dredging projects, and issue guidance to ensure uniform application of all relevant policies at the national, regional and local levels. In addition, we request that you support regulatory and statutory changes to the Clean Water Act and Water Resources Development Act that are needed to ensure prompt consideration of dredging permits and to establish a federal commitment to assure availability of suitable dredged material disposal areas.

Your Administration has already undertaken an important step. At the request of Secretary Peña, whose commitment to successfully address the dredging issue is greatly appreciated, the Department of Transportation has convened an Interagency Working Group. This Working Group will review the dredging project approval process and identify ways to improve interagency coordination, criteria review, and sequencing of approvals. We look forward to a prompt and successful conclusion of this important initiative.

The dredging crisis has, to a large extent, resulted from a "false choice" that pits the economy against the environment. We believe it is possible, with your leadership and commitment, to both enhance the economy and protect the environment through implementation of recommendations contained in the National Dredging Policy.

The Honorable William J. Clinton  
December 3, 1993  
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We hope that you will support the National Dredging Policy proposals. We need clear policy direction from the White House, providing a framework for all interested parties to work together to keep our nation's navigation channels open for trade. We look forward to working with your Administration to achieve these important national objectives.

Respectfully,

American Association of Port Authorities  
American Institute of Merchant Shipping  
American Maritime Congress  
American Pilots Association  
American President Lines, Inc.  
American Waterways Operators, Inc.  
Arkansas-Oklahoma Port Operators Association  
Association of American Railroads  
Bay Planning Coalition  
Carriers Container Council, Inc.  
Crowley Maritime Corp.  
Dredging Contractors of America  
Gulf Intracoastal Canal Association  
Intermodal Association of North America  
International Council of Cruise Lines  
Lake Carriers Association  
Maersk Line, Inc.  
Maritime Institute for Research and Industrial  
Development  
Matson Navigation Company, Inc.  
National Association of Waterfront Employers  
National Industrial Transportation League  
National Waterways Conference  
Pacific Northwest Waterways Association  
Passenger Vessel Association  
Propeller Club of America  
Sea-Land Service, Inc.  
Shipbuilders Council of America  
Tennessee-Tombigbee Waterway Development  
Council  
Transportation Institute  
Warrior-Tombigbee Development Association  
Water Resources Congress



## OPEN CHANNELS TO TRADE

A Proposal for a National Dredging Policy

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### A PROPOSAL FOR A NATIONAL DREDGING POLICY

#### I. Objective

The AAPA calls on the Administration and Congress to adopt a National Dredging Policy. The Policy should recognize the importance of dredging our nation's harbors to enhance economic development and international trading opportunities. *Ninety-five percent of U.S. overseas trade moves on ships in and out of U.S. ports.* The Administration should direct through executive order, memorandum of understanding or other appropriate means federal agencies, including the U.S. Army Corps of Engineers, Department of Transportation, Department of Commerce, Department of Interior, and the Environmental Protection Agency, to work together to facilitate dredging our nation's harbors in a timely and cost-effective manner consistent with environmental regulations. In addition, the Clean Water Act, Ocean Dumping Act and Water Resources Development legislation should be amended to provide for consistent management and disposal of dredged material and to establish a federal program to facilitate and expedite the construction and availability of adequate dredged material disposal areas, particularly for contaminated sediments that are unsuitable for placement in open waters.

#### II. Policy Goals

The following principles should guide the development of a National Dredging Policy:

- *Dredging our nation's harbors in a timely and cost-effective manner is good economic and environmental policy. Our country cannot afford indecision and gridlock on these issues. Wherever possible, regulatory reviews should be consolidated and streamlined.*
  - *Unless adequate and environmentally compatible dredged material disposal capacity is assured, dredging operations at U.S. ports will be jeopardized. A long-term, implementable plan to identify disposal sites should be developed on a national level and federal funds provided for the construction of those sites.*
  - *The vast majority of dredged material is not contaminated and can be managed without significant environmental impact by depositing it at appropriate aquatic disposal sites. Therefore, unbiased consideration should be given to all disposal alternatives, based on a relative assessment of environmental risk and overall cost.*
  - *Clean dredged material should be viewed as a resource, and beneficial uses should be encouraged when funds can be identified to pay for that use. There is a national interest in encouraging beneficial use of dredged material for such things as wetland creation and beach nourishment, therefore, where it is more expensive than other disposal options beneficial use should be a federal, not local sponsor responsibility.*
  - *It is neither environmentally productive nor cost effective to direct limited public resources to the cleanup of the large volume, but low level, pollutants usually found in sediments at navigation dredging projects.*
  - *In those cases where dredged material contains low levels of contaminants, elimination of any significant negative environmental impact through management measures, such as capping, should be emphasized.*
  - *Decontamination technology, although a desirable goal, has not been shown to be feasible or affordable on a broad scale. However, federal research and development of cost-effective decontamination technology should be given a high priority.*
- 

AMERICAN ASSOCIATION OF PORT AUTHORITIES  
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- Pollution should be controlled at the source to prevent contaminants from settling in the sediments of our nation's harbors and channel bottoms, thereby avoiding potentially costly cleanup. Polluters should be identified and required to pay the cost of contaminated sediments cleanup wherever possible.*

### III. Background

#### A. Ports' and Commerce

The importance of ports to the national economy cannot be overstated. Waterborne commerce has been the key to the economic vitality of our nation since its inception. Over 25,000 miles of navigational channels link American communities to each other and to foreign ports. This waterborne transportation network improves our quality of life every day by helping to ensure the availability of low cost goods to the consumer and export opportunities for American producers. *The U.S. Department of Transportation estimates that cargo activities at ports in 1991 contributed \$130 billion in services, generated 1.5 million jobs, contributed \$14 billion in federal taxes, and added \$70 billion to the Gross Domestic Product.*

#### B. Need for Dredging Policy

Sediment accumulates naturally in our rivers and harbors. Many of our major ports and waterways are not naturally deep enough to accommodate modern vessels. Therefore, there is no alternative to dredging our harbors if port operations are going to handle the increased trade volumes that are expected in the coming decade. *Each year, the U.S. Army Corps of Engineers (Corps) dredges over 300 million cubic yards of material from federal navigation channels. An additional 100 million cubic yards are dredged from access channels, berths and terminals at over 400 coastal and river ports in the United States.*

Despite the importance of an efficient and cost-effective waterborne transportation system to the economic well-being of our nation, there is no consistent, coherent national dredging policy designed to ensure that navigation channels are dredged and open for trade. Too often, channel navigation improvement projects are stymied because of the lack of federal leadership. The American taxpayer ends up paying the bill for the resulting bureaucratic delay and project gridlock. We must establish a national policy that enables the ports to dredge in a timely, cost-effective and environmentally responsible way.

#### C. Dredging and Positive Environmental Impacts

Water transportation is not only the most efficient mode of transportation but it is also the safest and most environmentally sound option. Cargo transported on waterways significantly reduces fuel usage, exhaust emissions and the threat of accidents. Well maintained and dredged harbors clear navigation channels to ensure the safe passage of vessels. The relocation of dredged sediments out of navigational channels removes bottom sediments from the path of cargo ships and oil tankers and reduces the risk of accidents. Contaminated sediments moved during dredging can be isolated through capping with clean materials or other appropriate management practices.

### IV. Regulation and Permitting

Before dredging of a channel can begin, the port authority as local sponsor must navigate a maze of permitting regulations and environmental laws. One significant problem in securing permission to dredge is the overlapping and complex environmental regulatory process. The Corps estimates that there are more than thirty federal laws and executive orders applicable to dredging and disposal activities. State and local requirements add an additional layer of review. There is no comprehensive, consistent federal approach to dredged material management. Rather, dredging activity is subject to piecemeal regulation under a variety of environmental laws that are designed primarily to regulate water quality, wetlands, solid waste, and endangered species, not dredging.

The Clean Water Act (CWA) and the Ocean Dumping Act (ODA) establish a detailed testing and regulatory regime to protect water quality and the aquatic environment. The ODA and CWA require certification of compliance with state water quality standards and consistency with state coastal zone management plans. Possible impacts on species or habitats may require additional consultation with state and federal fish and wildlife agencies under the Endangered Species Act. If dredged material is deposited on land it may be subject to laws regulating solid waste. While the objectives of these laws must be respected, the overlapping laws and agency jurisdictions make permit requirements for dredging permits a constantly moving target. The result is inertia not the development of acceptable dredged projects.

**Recommended Action:**

- A streamlined federal permit process should be put into place that eliminates redundant, sequential reviews, sets out clear lines of responsibility and limits authority of the various interested regulatory agencies. Where feasible, timelines should be established for permit review.

The Corps can only permit disposal of dredged material which meets guidelines and criteria established by the U.S. Environmental Protection Agency (EPA). In developing guidelines under the CWA and criteria pursuant to the ODA, EPA must consider the need for the dumping, its effects on human health, fish and wildlife, and the potential for persistent or long term impacts. Under the CWA, dredged material will not be discharged into the aquatic ecosystem unless it can be demonstrated that it will not cause "an unacceptable adverse impact," on the ecosystem. The disjointed regulatory efforts that result from different statutory measures that regulate ocean and bay disposal need to be rationalized with clear direction on where and how it is most appropriate to dispose of dredged material in the ocean, in bays, in confined near shore sites, and in upland sites.

**Recommended Action:**

- The CWA should be amended to establish a new section for permitting of dredged material in connection with navigation projects separate from Section 404 wetlands permitting. Such a section should:
  - (i) provide for establishment of criteria and procedures consistent with the ODA;
  - (ii) provide for regional, site-specific general permits for low volume, regular maintenance dredging;
  - (iii) recognize that all dredged disposal alternatives should be considered and encourage the use of good management practice, such as capping, to isolate any contaminants; and,
  - (iv) address upland disposal and beneficial use criteria.

## V. Dredged Material Management and Disposal

### A. Disposal Alternatives

Increasing concern for the need to improve water quality and to protect aquatic habitats has limited the options for placement of dredged material in open water and has increased regulation and oversight of dredging activities. Estuaries can be ecologically sensitive and the presence of wetlands limit the availability of near shore disposal sites. Upland sites are being rapidly depleted due to urbanization and increasing land use restrictions. The reality is that dredging must continue and dredged material must be placed somewhere. Consequently, there is a national need to establish a rational process for making a decision.

Unfortunately, our ability and willingness to implement solutions have not kept pace with our technical ability to identify environmental problems. We can both protect the environment and get on with the business of dredging. No disposal or management option should be categorically excluded if it can be shown that it may be environmentally preferable and cost-effective. This principle has been recognized by the London Convention of 1972, the international treaty governing ocean dumping, and by recently issued EPA/Corps guidance, "Assessing Environmental Effects of Dredged Material Management Alternatives."

**Recommended Actions:**

- The CWA and ODA should provide explicitly for consideration of the full range of disposal options, with the total decisions based on both the characteristics of the material and the circumstances of the project area, in order to ensure that the most environmentally sound and cost-effective disposal option reasonably available is selected.
- In the event that a federal or state resource agency opposes the dredged material disposal alternative selected by the Corps, which is consistent with EPA criteria and guidelines, that agency should be required to identify acceptable alternatives and to assure the availability of funding to cover any incremental costs above the recommended alternative.

***B. Dredged Material Disposal Areas***

Despite the fact that the construction and maintenance of disposal facilities are an integral part of the construction and maintenance of federally justified and authorized navigation projects, local project sponsors in most cases are responsible to pay 100 percent of near shore confined and upland disposal costs. The Water Resources Development Acts (WRDA) of '86 and '90 established a federal/local project partnership and required local cost sharing for all other construction-related project components, except disposal areas and full coverage of all maintenance costs through the Harbor Maintenance Trust Fund (funded entirely by a tax on the value of cargo passing through ports.) The development of disposal facilities nationwide is crucial to the facilitation of construction and maintenance of federal and non-federal navigation improvements. *National navigational benefits cannot be realized unless and until adequate and environmentally protective disposal sites are available.*

Construction of readily accessible nearshore disposal facilities and sites for contaminated dredged material could result in lower costs for maintenance dredging overtime. Even if there are marginally increased costs, required federal cost sharing for landside and confined disposal facilities would put all disposal options on an equal footing and have the positive impact of allowing the Corps to fully realize the goals of its "environmental mission" by providing opportunities for restoration of wetlands, and full consideration of other environmental benefits in determining disposal options.

**Recommended Actions:**

- Amend the provisions of WRDA '86 to establish a lead federal responsibility to assure the availability and pay the cost for construction of adequate, environmentally protective dredged material disposal areas needed in connection with the construction and maintenance of federal and non-federal deep draft navigational improvements.
- Regulations and guidelines for the construction and management of confined disposal areas should be established and implemented by EPA's Office of Water.

***C. Beneficial Use***

Most dredged material is not contaminated. When dredged material is suitable for beneficial use (e.g., beach nourishment, wetlands restoration, bank stabilization) it should be viewed as a potential resource. There are, however, many practical problems to implementation of this policy. *The single largest obstacle to more widespread beneficial use of dredged material is lack of funds.*

Too often, the beach or wetland restoration site is not in close proximity to the dredge site, therefore, it is difficult or expensive to move the material. In other cases, there may be no beneficial use site available at the time the dredging project is scheduled to move forward. Ports support a broader federal and state commitment to the beneficial use of dredged material; however, the port as local project sponsor should not bear the additional cost. The beneficiaries (direct users, local taxpayers, state, or federal government) should bear the increased cost. Dredging projects should not be delayed when funding is not available or there is no consensus on beneficial use of the dredged material.

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5 As water dependent entities, ports are well aware of the need for the protection and restoration of our nation's coastal wetlands and mitigation for project development impacts. However, it is in the "national" interest to restore wetlands and the ports already bear a significant cost of federal dredging projects.

**Recommended Actions:**

- The federal government should amend its regulations to encourage beneficial use of dredged material, where funds are available.
- Mitigation requirements should be set at levels that reflect the actual functions and values of wetlands properties that are developed.
- Regional mitigation banks should be established, and in lieu fees permitted, to accommodate the cost-effective development of ecologically valuable wetlands.

## V. Regulation of Contaminated Sediments

### A. *Extent of Contamination*

Ports tend to be located in areas of high population density and industrial activity. Contaminants from upstream sources of pollution can adhere to sediments and be transported downstream into harbors. As a result, public port authorities that need to dredge their navigation channels can find themselves confronting a build up of contaminants that have, quite literally, been dumped into their harbors over a long period of time. The extent of sediment contamination in navigation channels currently dredged is, however, much less extensive than commonly perceived. To direct limited cleanup resources at the large volume, but low level, pollutants in navigation dredging projects is neither environmentally productive nor cost-effective.

While the National Oceanic and Atmospheric Administration's National Status and Trends Program has found sediment contamination nationwide, they concluded that "on a national scale, biological effects are restricted to extremely contaminated and spatially limited locales." A 1989 National Research Council study on contaminated sediments concluded that most highly contaminated areas do not even fall under the Corps' navigational authority. Most of the serious sediment contamination problems in this country are well away from navigable channels, and involve discharge of poorly treated wastes, such as the buildup of DDT and other contaminants near Palos Verdes in Santa Monica Bay and near sanitary outfalls in Puget Sound. Other serious problems, particularly in the Great Lakes, are associated with aerial fallout and stormwater runoff.

The low levels of contaminants usually found in dredged material can be managed so that there is little, if any, significant impact on the environment. Unfortunately, when reviewing dredging permits, federal regulatory agencies fail to correct the public misperception that there is widespread contamination that cannot be safely managed.

**Recommended Actions:**

- A regulatory approach should be adopted that directs resources to maximize environmental benefit, rather than mandate expenditures for low risk, low priority dredging impacts.
- Ports support the formation of the National Contaminated Sediment Task Force as provided for in the Water Resources Development Act of 1992, to advise EPA and the Corps, regarding the development of appropriate sediment quality criteria, and the monitoring and management of contaminated sediments.

### B. Decontamination

Efforts are underway to identify remediation and decontamination technologies that can be applied to dredged material of contaminants. For example, the Assessment and Remediation of Contaminated Sediments (ARCS) initiative in the Great Lakes has identified some promising approaches in the lab. However, these have only been bench scale tests and have not been tried on a large scale. It has been estimated that the cost of implementing remediation technology on a broad scale can be prohibitive, costing over \$400 per cubic yard. Application of decontamination technologies are not feasible in the near-term for broad scale applications.

#### Recommended Action:

- The federal government should increase research and development of decontamination technology, as well as for low cost technologies and practices for highly contaminated sediment, as well as, the handling and management of large volumes of dredged material that include low levels of contaminants, including capping and borrow pits.

## VI. Cost Sharing and the Local/Federal Partnership

Since the cost sharing reforms of the 1986 Water Resources Development Act, ports as the local sponsor of navigation dredging projects pay between 35 and 60 percent of the project construction cost of federal navigation projects depending on the depth of the project. The rationale for the cost sharing was that, while the federal investment in the project is justified by the "national interest" in transportation efficiencies and savings from the project, the private and local beneficiaries of the project should also bear some of the cost.

The federal government recoups more than 100% of the cost of channel maintenance through a tax on the value of cargo moving through the commercial ports.

The local navigation project sponsors are 100% responsible for dredging non-federal access channels and berthing areas that connect ports to federal channels, and currently bear all of the cost of providing lands, easements, and disposal areas if open water dredge disposal sites are not available.

Any increase in project cost or delay in project implementation has a direct effect on the port's cost share and, of course, on port operations that rely on the improvement. Despite the significant financial contribution of the ports to navigation projects, the Corps has been slow to recognize ports as "partners" in the implementation of navigation projects. Recognition of the ports as full partners in navigation projects will save both federal and local dollars through more efficient project management.

#### Recommended Actions:

- There needs to be a review of the current process for planning and implementation of navigation projects to determine how they can be completed in a more timely and cost-effective fashion, saving federal, as well as local, dollars.
- The role of the local sponsor should be increased at every stage of the project.

#### FOR MORE INFORMATION ON DREDGING CONTACT:

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GALVESTON  
**BAy**  
FOUNDATION

Statement of the Galveston Bay Foundation to the  
oversight Hearing on Port Access Issues in the Gulf of Mexico  
December 8, 1993

Subcommittee on Oceanography, Gulf of Mexico  
and Outer Continental Shelf  
House Committee on Merchant Marine and Fisheries

Port access and related issues, including those associated with the dredge material produced to maintain that access, have been ongoing concerns of the Galveston Bay Foundation since its formation in 1987. The Galveston Bay Foundation is a nonprofit organization dedicated to the preservation and enhancement of Galveston Bay for its multiple uses, through programs in education, conservation, research and advocacy. Four issues have been identified by the Galveston Bay Foundation for consideration by this subcommittee.

Sediment Quality

Sediment quality in our coastal waters, and especially as it relates to dredging operations, continues to be an unresolved issue. Sediment quality standards have not yet been established by the Texas Natural Resources Conservation Commission or by the U.S. Environmental Protection Agency.

Yet, it has been documented in several studies that sediments in many of our coastal waters, portions of Galveston Bay included, are contaminated with heavy metals and petroleum hydrocarbons, usually in association with a proximity to industrial discharges or oil and gas production. One of these studies, the "Contaminant Assessment of the Upper Texas Coast" published by the U.S. Fish and Wildlife Service in September 1993, evaluated sediment samples at 16 sites in the Galveston Bay system, including High Island and Chocolate Bayou, up the west side of Galveston Bay and some of its tributaries, and up the San Jacinto River to Buffalo Bayou. Tissue samples from aquatic life at approximately half of these sites were also evaluated. At least seven of the sites showed indications of problem levels of contaminants. More recently, unpublished data on the inland portions of the Houston Ship Channel have revealed sediment contamination upstream to the Turning Basin.

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Further indication of the problem of sediment contamination is evidenced by the seafood consumption advisory for upper Galveston Bay and the Houston Ship Channel due to dioxin contamination, a toxic chemical with an affinity for sediments, and by the mercury concerns down the Texas coast in Lavaca Bay.

While many of the contaminants in question generally bind with the sediments, and consequently do not pose a continual threat to human health and aquatic life, samples showing the accumulation of petroleum and industrial hydrocarbons in fish and fish-eating birds from the sediment-contaminated areas testify to the legitimacy of the growing concern among seafood consumers and participants in contact recreation about the safety of their coastal water resources.

The bioavailability of contaminants associated with sediments changes with the seasons, the weather conditions, and with disturbances, e.g. as dredging, in the area. At the very minimum, more research is needed to evaluate the potential threats from these contaminants. However, much can be done to minimize the impacts of these contaminated sediments by addressing the dredge spoil disposal question.

Disposal of Dredge Materials

The agreement by the Port of Houston Authority to restrict open bay disposal of new dredge material associated with the Houston Ship Channel, and the recent success of the Beneficial Uses Group of the Interagency Coordination Team in identifying and planning valuable contributions to the coastal environment that can be made with proper planning and design of dredge material disposal are milestones in the Galveston Bay area. No longer must new channel projects exacerbate their impacts on coastal resources by dumping their wastes in our open bay.

It is important to remember, however, that for a channel project to go forward, its economic benefits and viability must be demonstrated, independent of the reduced environmental impacts from dredge spoil disposal.

Port access for our inland ports also still poses the issue of disposal of material from maintenance dredging. Our inland ports depend on dredging to maintain their depths since they are generally located in shallow bay systems. (Galveston Bay's average depth is about 8 feet, while 40 feet is the depth needed for transport of many of the commodities using area ports.) Open bay and unconfined disposal of dredge material destroys bay bottom habitats, but perhaps more importantly, the presence of this material in the bay may pose an ongoing exposure to human, aquatic and birdlife when those sediments are contaminated.

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Confined upland disposal and beneficial uses are needed for maintenance material as well as new material.

#### Erosion and the Gulf Intracoastal Waterway

The plight of Sargent Beach and the whooping crane habitat at Aransas regarding erosion from the Gulf Intracoastal Waterway (GIWW) has been well documented. Many efforts have been targeted to solving this problem with our valuable inland barge canal. The Galveston Bay system is beginning to experience its own effects with a breakthrough from the GIWW to Christmas Bay, a state coastal preserve under consideration for nomination as an federal "outstanding natural resource water." It is the most pristine habitat left in the Galveston Bay system. Efforts must be redoubled to find a solution that will maintain the economic advantages of the GIWW while protecting the most sensitive areas of our coastal resources.

#### Oil Transport

Many of the port-related issues in Galveston Bay seem to be driven by the absence of a cohesive national oil import strategy. A reduction in the volume of oil transported across Galveston Bay would reduce the threats of oil-spill damages and the demands for channel enlargements, with their attendant impacts. Without a national strategy, it is extremely difficult to develop reasonable transport alternatives that make sense on a regional basis for the important petroleum and petrochemical component of the Galveston Bay economy.

#### Conclusion

The Galveston Bay Foundation is a consensual organization composed of environmental, recreational, and business organizations and others who are dedicated to the proposition of ensuring and sharing the resources of Galveston Bay. We are committed to finding strategies to allow development without resource degradation and look forward to working with the Subcommittee in the future.



My name is H.E. (Eddy) Handley and I am the General Manager of the Port Terminal Railroad Association, Houston, Texas. I have been the General Manager since April 1981 and before that I held various positions in the Operating Department for the Missouri Pacific Railroad, now the Union Pacific Railroad. I have been in the railroad industry for the past 36 years.

The Port Terminal Railroad is an association of all railroads operating in Houston. It was formed in 1924 for the purpose of furnishing impartial switching service by a neutral, for the benefit of all members. Area of service is along both sides of the Houston Ship Channel, which is located in the southeast portion of Houston and extending through its neighboring towns from the Ship Channel's Turning Basin to LaPorte.

Serving approximately 150 industries and the public docks, divided about equally on each side of the Ship Channel, PTRAA maintains 154 miles of track including 47 miles of main track, 23 on the south side and 24 on the north side.

PTRA has over 400 employees and handles about 500,000 cars annually. Service area includes two large export grain elevators and one of the largest chemical complexes in the world. Commodities handles through the public docks are many and varied.

The amount of grain handled on the PTRA depends on the export market and is varied year by year. In 1985 the PTRA handled 152,389 cars in other than grain service and in 1993 the PTRA will handle about 440,000 cars. The majority of this traffic is chemical and plastics. This is an increase of 189%. Nearly every plant on the ship channel is expanding so there is no reason to think that this growth will not continue.

In 1990 and 1991 the PTRA handled an excess of 32,000 cars for Desert Shield and Desert Storm receiving accommodation awards from the U.S. Military.

The railroads serving Houston, Texas have had a long cooperative relationship with the Federal Railroad Administration. As you know the FRA is the agency responsible at the Federal level to enforce railroad safety. FRA also has a research and test mission which is the mechanism they use to investigate promising approaches to solving railroad safety and railroad operating improvements. It is in this research and test mission where the Houston railroads have cooperated with this Federal Agency.

For the past twenty years the Houston railroads have served as a test bed for new concepts. In the early 1970's Houston was the site of the Houston Terminal Project. This was a jointly funded program by the Association of American Railroads and the Federal Railroad Administration. Its main purpose was to encourage railroad labor and management to experiment with new approaches to move rail cars through congested rail terminals. Labor and management in the Houston Gateway rose to the occasion. In fact several of the major improvements to railroad operations experimented with during this project are still in use today. These improvements helped set the stage for the rapid growth of the Houston railroad complex.

In the early 1980's also as a result of a cooperative program with the Federal railroad Administration the Houston railroads were chosen as the site to implement a new computer system for exchanging railroad cars within terminals. The "Terminal Information Exchange System", TIES, was instituted and successfully completed. This system continues to control movements in Houston today. Also, many other segments of the railroad industry have since adopted this system and use it daily to control the interchange of railroad cars between railroads.

In the mid 1980's the Port Terminal Railroad and the Southern Pacific Transportation Company working with the office of safety of the FRA developed and tested several new safety training programs. What made this so unique was the use of computer interaction videodisc as the training delivery system. PTR and SP employees were exposed to video on a computer screen depicting operating procedures. They were then required to interact with the computer answering questions on the safety aspects of what they just witnessed. As a result of this developmental work many Class I railroads are now using similar systems to train their workers.

As a result of this cooperative history, in November of 1992 the Houston railroads were selected as the site to develop and test improved communication procedures between railroads and emergency response personnel in the event of a hazardous material incident. This project called "Operation Respond" is being jointly funded by the Houston Railroads and Federal Railroad Administration. Its main goal is to enhance the ability of these emergency response personnel arriving at a railroad hazardous material incident to deal with the situation in a timely accurate and safe manner. The railroads have spent millions of dollars developing a hazardous material reporting system. This system contains all the information needed to make the proper decisions when faced with a hazardous material incident. Operation Respond is attempting to put this information in the hands of the people faced with making the emergency response decisions.

For the Past twelve months Operation Respond has been progressing on the following fronts:

1. Training Catalog: A catalog of available training programs for first responders to railroad hazardous material incidents has been prepared. Twenty nine programs were summarized in the catalog. Copies have been distributed throughout the police and fire departments in Houston City and Harris County.

2. A Laminated card/sticker dash board quick summary of the do's and dont's when arriving at a scene is now being printed. These will be given free of charge to police and fire departments to put in their equipment and to give to their personnel to carry in their wallets.
3. A Guidance Manual for police and fire personnel containing highlights of emergency response information when confronted with a railroad hazardous material incident. This manual contains information on phone numbers to call on each railroad and also some important safety precautions if an Amtrack train is involved.
4. Most of Operation Respond energies have been devoted to connecting local police and fire dispatch centers to railroad hazardous material computer files. This effort has been extremely successful. In fact as of this date we have the following organization on line connected to the Port Terminal railroad and the Houston Belt and Terminal Railroads.

- a. The Houston Fire Department Hazardous Material Team.
- b. The Harris County Sheriff's Department 911 Dispatch.
- c. The Houston Police Department 911 Dispatch.
- d. The Pasadena Police and Fire Dispatcher.

The Project Team is currently working with the Union Pacific Railroad and the Southern Pacific Transportation Company to add their hazardous material files as part of our program. Also efforts are underway with the Baytown, Kingwood and Conroe, Texas fire departments to bring them on line.

For the record I am submitting a copy of the type of information contained within the railroad hazardous material files. The main components of interest to emergency responders are the commodity within the car, how to deal with a leaking or burning situation, evacuation criteria and general safety practices. Through technology Operation Respond is putting this information in the hands of emergency responders in the important beginning moments of a hazardous material incident.

5. Grade Crossing closures: Another objective of Operation Respond is to lessen the exposure of hazardous material trains to the traveling public. Through an effort closely coordinated with the City of Houston plans are underway to justify closing up to 25% of the over 700 rail highway crossings in the Houston Metropolitan area.

In calendar year 1994, subject to additional funding provided by the Federal Railroad Administration the scope of Operation Respond will expand along major cities of the Gulf Coast. The plan includes such cities as Freeport, Beaumont, Corpus Christi as well as New Orleans, Louisiana. Also in 1994 Operation Respond will broaden its transportation scope to include motor carriers using rail for their long haul movements. A motor carrier of hazardous cargo using rail piggyback service will become an active member of the Operation Respond program.

In conclusion, I would like to thank the committee for the opportunity to testify in the importance of railroads to the Gulf Coast region. All of what we have done and plan to do is a result of the hard work and dedication of a talented group of people. Not only railroad people, but also those working for our customers (particularly the chemical industry) our public servants in Federal, State and local governments and those at the Port of Houston. From a rail transportation point of view Houston exemplifies the team approach. We prove day in and day out that we "can get it done".

**Testimony by Charles W. Shaver, Jr., The Dow Chemical Company  
to the  
U.S. House of Representatives  
Subcommittee on Oceanography, Gulf of Mexico and  
the Outer Continental Shelf**

**Monday, December 13, 1993**

In 1940, the Dow Chemical Company purchased 800 acres of land at the mouth of the Brazos River in Freeport, Texas on the Gulf of Mexico. It was an ideal location due to its proximity to the Gulf of Mexico which provided seawater used in the magnesium process and the transportation advantage it provided for domestic and overseas shipping. Today, Dow's Texas Operations is one of the largest chemical complexes in the United States.

Dow's marine facilities in the United States ship approximately 5.5 million tons of product annually to domestic and international customers. Of that amount, about 4.5 million is shipped by barge. Barges carry product down the Texas coast to customers along the Intracoastal waterway to Corpus Christi, eastward to our Louisiana Division and inland up the Mississippi River and its tributaries.

As global trading partnerships (such as NAFTA and GATT) and competitive markets increase global commerce, efficient, safe, cost effective means of transportation become increasingly important. Approximately 95 percent of all global commerce is currently shipped by marine transport. The significance of maintaining, improving and expanding our waterways and ports becomes more pronounced.

Just as safety and maintenance are important to maintain our automobiles, trucks, highways and railroads, our inland waterways and seaports require the same care. Our inland ports and waterways are "invisible highways" to most Americans. This water transport system adds billions of dollars in revenues to our economy annually and creates millions of jobs. These "invisible highways" open our door to the world.

The commercial shipping industry has come a long way from the late 1800s when schooners were 18 feet long, 22 feet wide and had an eight foot draft to the marine vessels used today that measure 750 feet long, 100 feet wide and have a 45 foot draft. Few harbors or ports have naturally deep facilities to handle ships of this size, therefore dredging is essential. Without dredging, today's container ships could not use New York harbor with its natural depth of only 18 feet or barges couldn't carry goods on the Mississippi River where the depth in certain sections is only six feet deep.

Maintaining and expanding harbors significantly improve safety and reduce the costs of shipping. Widening and dredging harbors and ports provides access to

facilities, sufficient room for large vessels to maneuver and even, two-way traffic patterns.

Repeated studies demonstrate that water transport of commercial goods is the safest means available to us. New equipment, new traffic control schemes and ongoing maintenance of vessels are shining examples of our marine transport picture.

As proud environmental stewards, the employees at Dow believe it is essential to consider responsible approaches to dredging technology and the utilization of dredging materials. We would like to see continuation of combined industry, community and government efforts to develop new handling techniques and uses for dredging materials. We believe innovative, new approaches to the use of dredged materials -- innovations that consider ascetic, environmental and economic consequences -- are possible.

United State's ports and waterways are world competitive, safe, cost effective and efficient. It is imperative that we continue to be and through the concerted efforts of government, industry and others working together, we believe this can be achieved. Thank you.

BENEFICIAL USES GROUP

RECOMMENDED  
BENEFICIAL USE PLAN

FOR

PLACEMENT OF DREDGED  
MATERIALS

approved by the

INTERAGENCY COORDINATION TEAM

OCTOBER 2, 1992

FINAL REPORT

### The Beneficial Uses Group (BUG)

#### Background

The Interagency Coordination Team (ICT) established by the U.S. Army Corps of Engineers (USACE), was charged with oversight of a range of environmental issues attendant upon the proposed Houston Ship Channel (HSC) widening and deepening project. The Beneficial Uses Group (BUG) was created as a subcommittee of the ICT with the assigned task to evaluate possible beneficial uses of dredged material and incorporate them into a dredged materials disposal plan for the HSC project. The BUG's membership included five (5) federal agencies, two (2) state agencies, and the Port of Houston Authority. The BUG's members and representatives are listed below:

- U.S. Army Corps of Engineers (USACE) - Thom Rennie
- U.S. Fish & Wildlife Service (USFWS) - Phil Glass
- U.S. Environmental Protection Agency (EPA) - Mike Jansky
- National Marine Fisheries Service (NMFS) - Rusty Swafford
- U.S. Soil Conservation Service (SCS) - Eddie Seidensticker
- Texas Parks & Wildlife Department (TPWD) - Andy Sipocz
- Texas General Land Office (TGLO) - Bruce Smith
- Port of Houston Authority (PHA) - Dick Gorini (Chairman)

At the outset, an essential point was agreed upon; the participation in development of a beneficial use plan for dredged material by these participating agencies would not constitute an endorsement of the HSC project by those agencies individually or collectively. When developed, the BUG plan would be reviewed in the context of all the key environmental issues being addressed by the ICT.

Finally, the PHA, as local sponsor, is required by the Water Resources Development Act (WRDA) to provide and maintain disposal areas; in addition, the PHA has agreed to "pay for the difference in life-cycle cost between the recommended disposal plan and a locally preferred plan."<sup>1</sup> Because of these responsibilities, the PHA engaged the services of experts in dredging and related fields to provide staff and assistance to the BUG.

#### Purpose

The formally adopted purpose of the BUG is stated as follows:

*To develop a disposal plan that utilizes dredged material in an environmentally sound and economically acceptable manner that incorporates, to the extent possible, other public benefits into its design.*

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<sup>1</sup> *Department of The Army, January 8, 1990, CECW-PM (10-1-7a), signed Lieutenant General H.J. Hatch, Chief of Engineers.*

That statement of purpose arises from recognition of three basic principles by the BUG.

1. Dredged material is a potential valuable resource and should be considered and treated as such;
2. Development of an environmentally acceptable disposal plan is intrinsic to the eventual approval of this project, other environmental concerns notwithstanding; and
3. Any disposal plan put forward by the BUG must have long-term environmental benefits for the Galveston Bay system.

### **Approach**

The approach being utilized by the BUG for Galveston Bay makes this effort unique and precedent setting; what is being attempted, in its totality, has never been done before.

The BUG's efforts are unique in that:

1. The BUG is an interagency group developing a preferred disposal plan - rather than reviewing a proposal in a regulatory setting.
2. The BUG is addressing one of the largest navigation projects in recent years (approximately 120 million cubic yards (MCY) of new work material and an estimated 190 MCY of maintenance material over the next fifty years).
3. The BUG is committed to the objective that the final plan shall have a net positive environmental effect over the 50 year life of the project.
4. The BUG actively solicited beneficial use suggestions from Bay interests and user groups - whose collective ideas have been given full consideration during the development of the recommended plan.

### **Development of Candidate Sites**

#### **Public Participation**

This element was approached carefully, and was an effort to solicit input from a wide range of Bay users. Briefly, the process was:

1. An information packet was developed by the BUG, supplemented by graphics and slides for meetings;

2. A list of Bay interests, user groups and local government entities was developed, and the packets were mailed to them; and
3. Those groups expressing an interest were contacted. Numerous letters were received, and approximately fourteen (14) meetings, scheduled at interested groups convenience, were held over a sixth-month period. The ground rules for the meetings were few but direct:
  - a. No organization's name would be used in any way, either as an expression of support or opposition to the project - it was simply a solicitation for their ideas and perceptions on beneficial uses of dredged material.
  - b. All organizations were asked that IF the project was authorized, how would they like to see the dredged material used beneficially.
  - c. In the context above, it was requested that the meetings be small (20 or less participants if possible), and informal, and secondly, that only potential beneficial uses of dredged material be discussed, not the merits of the project.
  - d. While all input would be fully considered, the final decision on the recommended plan would be made by the BUG - environmental enhancement of Galveston Bay would be the primary consideration.

The results of the process were quite rewarding, with many suggestions for use of dredge material submitted; far more potential uses were identified than the total material available for construction. A composite of these suggestions is presented in Figure 1. Common threads to all of the meetings were:

1. Beneficial uses should stress restoration.
2. Wetlands, bird areas and shoreline protection (from erosion) should be emphasized.
3. Sacrificing productive habitat for creation of new was to be avoided.
4. Restoration of Red Fish Island was highly desired.

Ultimately, the plan will have to undergo formal public and agency scrutiny through the NEPA process. In its current form, however, the BUG's recommended plan has taken into consideration all of the publics ideas for beneficial uses of dredged material.

### **Beneficial Use Sites Selection and Screening Process**

Based on input received in the public meetings and other input from individuals and agencies, the potential beneficial uses were consolidated into 23 groupings reflecting those suggestions (see Figure 2).

The BUG adjusted these 23 groupings to avoid existing oyster reefs and major concentrations of oil and gas wells. These initial 18 sites (see Figure 3), with the sizes shown below, were provided to the USACE Waterways Experiment Station (WES) for simulation of impacts on the bay in its Hydrodynamic and Salinity model

<u>SITE NUMBER</u>	<u>SIZE (acres)</u>	<u>LOCATION</u>
1	100 ac.	Pelican Island
2	1500 ac.	Texas City
3	1500 ac.	Bolivar Roads
4	200 ac.	East Bay
5	200 ac.	Lower Galveston Bay
6	100 ac.	Dickinson South
7	200 ac.	Dickinson North
8	500 ac.	Red Fish Island
9	200 ac.	Seabrook
10	500 ac.	West Trinity
11	100 ac.	Vingt-et-Une
12	100 ac.	Double Bayou
13	100 ac.	Trinity Bay
14	300 ac.	Houston Point
15	1500 ac.	Cell 14/15
16	200 ac.	La Porte
17	200 ac.	Pasadena Point
18	500 ac.	Goat Island

### **Hydrodynamic and Salinity Model**

The USACE WES performed two series of model runs to evaluate the beneficial use sites' impacts on circulation and salinity within the Galveston Bay system. The ICT suggested that the initial run include all alternative sites in the model, assigning each a probable maximum size considered at that time and an approximate location. If no significant impacts were indicated in the runs of the model with all sites included, then even less impact would be expected if sites were reduced in size or deleted, and a large number of model runs could be avoided.

The ICT concluded, based on the WES model runs, that changes in salinity and circulation caused by inclusion of all 18 sites at the locations shown, would be minor and localized. To the extent beneficial use sites are deleted or reduced in size, the condition in the bay approaches that of the base condition. Therefore, the model run with all considered sites can be considered to have the greatest maximum impact. That scenario had little significant effect on the hydrodynamic and surface salinity characteristics of the bay.

The existing Houston Ship Channel dimensions were used for the two series of runs. One additional run is needed to reflect the impact of the sites as finally determined.

#### Supporting Data

##### Physical Data

Information was collected and analyzed for effect on the number, size, location, and construction and maintenance requirements of the sites. First, consideration was given to the quantities of materials to be dredged during the new work construction in Phase I and Phase II. These quantities were calculated using the proposed alignment of the deepened and widened ship channel, developed by WES as a result of the ship handling simulations. The quantities along the channel were divided into three sections consisting of the Entrance section from Bolivar Roads to the end of the channel in the Gulf of Mexico, the Bay section from Bolivar Roads to Morgan's Point, and the Bayou section from Morgan's Point to Boggy Bayou. These sections were also analyzed for their shoaling rates based on historical maintenance dredging requirements.

The estimated quantity of materials to be dredged and placed for the fifty year life of the project have been refined several times. The approximate quantities are presented below.

<u>New Work Dredging</u> (cubic yards, millions)	<u>50 year</u> (cubic yards, millions)			
<u>Section</u>	<u>Phase I</u>	<u>Phase II</u>	<u>Maintenance</u>	<u>Total</u>
Entrance	6	15	61	83
Bay	26	31	76	133
Bayou	26	14	53	94
Total	58	60	190	310

The Entrance section materials placement plan utilizes the existing offshore site, although consideration of the alternative use for sand in the jetty area is still under consideration. The BUG's objective was to develop a beneficial use plan for the project. To date, the primary focus has been on the Bay section.

Other data considered in the sizing and location of sites were existing Bay bottom materials and depths, tidal ranges, wind directions, and existing disposal area conditions.

### Sediment Probes

One of the key criteria of locating any beneficial use site is the sediment properties which govern the ability of the Bay bottom to provide support for the proposed beneficial use. Data identifying the thickness and location of the soft mud overlying firmer materials were not available; therefore, an investigation of Bay bottom conditions through sediment probing was conducted. Three hundred sediment probes were performed over a grid pattern spaced at approximate five thousand feet intervals to estimate the weight bearing capacity at various locations (see Figure 4).

The resulting data assisted the BUG in locating beneficial use sites in areas where the amount of available materials from the dredging could be efficiently utilized while minimizing the risk of failure due to settlement and sinking. Additional foundations investigation will be conducted as sites undergo further refinement and into final design.

### Planning Criteria for Beneficial Use Sites

Through interactive discussions of the BUG members, input from the public and various interest groups, and field trips to view demonstration marsh sites (Mitchell Energy site near the Aransas National Wildlife Refuge/SCS demonstration marshes in east Galveston Bay), bird habitats, and existing marshes, the BUG developed generic criteria for the three general types of beneficial uses; bird island, marsh, and boater destination construction. They are presented below:

#### Bird Island Criteria

- Location
  - Isolated from predators and disturbance
  - Near good feeding areas
  - Remote from existing rookeries
  - Near ready source of maintenance material

- Elevations / Slopes
  - 5 to 50 acres emergent
  - 3 to 10 feet high
  - Sloping beach to provide water access
- Materials / Features
  - Coarse materials as substrate
  - No freshwater catchments
  - Suitable successional stages of vegetation

#### **Marsh Criteria**

- Hydraulics
  - Adequate frequency and duration of inundation
  - Circulation channels for inflow/outflow and organism access
  - Network of small interconnected channels, ponds and swales
- Elevations/Slopes
  - Undulating topography
  - Mix of marsh and open water ("Edge")
  - Gradual slopes
  - Reflection of existing marshes within the vicinity of the proposed site
- Geometry
  - Perimeter constructed to withstand adverse weather conditions
  - Undulating edge
  - Shape and size comparable to existing area marshes
- Location
  - Locate in protected areas to the extent possible
  - Locate in areas of low current velocity
  - Bank stabilization to minimize erosion (plantings and structural)

#### **Boater Island Criteria**

- Navigation
  - Visibility (high enough to be seen from a distance)
  - Shoals marked
  - Entrance routes marked
  - Access route depth (close to natural bay bottom or 6 - 8 feet)

- Mooring
  - Shape
  - Large (3/4 mile<sup>2</sup>) embayment on north (summer use)
  - Small embayment on south (winter use)
  - Steep dike slope for close anchorage
  - Landing area in each embayment
  - Island high enough to be windbreak (5' - 10' MHW)
- Attractions
  - Flat use areas
  - Sandy beach area
  - Wildlife - provide habitat to attract shorebirds and other wildlife
- Visitor Comfort
  - Drainage; well-drained to control mosquitoes
  - Windbreak
- Number and location
  - Sufficient to divert use from bird islands
  - Sufficient to prevent overuse
  - Bank stabilization
  - Avoid areas of sediment buildup
  - East side of HSC
  - Minimize environmental degradation

#### NMFS Potential Productivity Study (Standing Crop)

The NMFS undertook a quantitative biological study to evaluate potential sites for marsh creation by comparing various habitats and locations in the Bay during September, 1991. The study was designed to compare marsh and open water utilization by shellfish, shrimp, and juvenile fishes within and between various sites in Galveston Bay, defined by the September 1991 standing crop measurements. Potential biological productivity values were estimated for 16 marsh and open water sites for potential marsh creation locations. Based on the biological values, rational decisions can be made to select the most biologically productive sites for marsh creation and determine subsequent impacts.

Juvenile species collected from open water (beam trawl, otter trawl, and sediment cores sampling methods) and associated marsh sites (drop sampler and sediment cores sampling methods) were evaluated for abundance (number/m<sup>2</sup>) and biomass (grams/m<sup>2</sup>). The study divided the bay into four zones corresponding to salinity gradients and distance from the Gulf of Mexico.

Zone I included the Houston Ship Channel and Trinity Bay; Zone II the upper West Bay and upper East Bay; Zone III the mid-West bay and mid-East Bay; and Zone IV the lower West and East Bays (see figure 5).

Fish examined were Spotted Sea Trout, Red Drum, and Atlantic Croaker. Bait fish examined were Bay Anchovy, Gulf Menhaden, Mullet, and Pinfish. Resident fish examined were cyprinodontids and gobiids (primary consumers). The crustacean groups examined were Penaeid Shrimps, Grass Shrimps, Blue Crabs, and Mysids.

Conclusions developed from the study were:

1. Utilization is greater in marsh for Penaeid shrimps, Blue Crab, and Spotted Sea Trout while utilization was greater in open water for Mysids, Bay Anchovies, and Atlantic Croaker. Species such as Grass Shrimps, cyprinodontids and gobiids were predominately found in marsh.
2. The best zones for marsh associated fish and crustaceans, as measured by abundance and biomass, were Zones III and IV, comprising the lower half of the bay. Accordingly, Zones III and IV were best for brown, white shrimp and spotted sea trout.
3. Abundance and biomass was usually significantly higher in the marsh than open water.
4. Using the ship channel to divide the bay into eastern and western halves, fish and crustaceans were more abundant on the eastern side. High abundance favoring marsh and the eastern side were largely determined by brown shrimp, white shrimp, and grass shrimp. Blue crab was roughly equivalent to both sides.
5. Brown shrimp, white shrimp, blue crab and grass shrimp were consistently more numerous and had greater biomass in the marsh throughout all zones.

#### Potential Productivity Comparisons

Using the NMFS study, each proposed beneficial use disposal option was evaluated, including preferred sites, expected ranges of potential productivity, gain or losses in potential productivity, and comparison of each alternative. The methodology used to develop potential production criteria for each site included in the alternatives is attached. The results of the above methodology performed for potential productivity using the NMFS study is presented on the following pages as Alternatives A, B, and C. Biomass and abundance for each alternative plan is summarized in the last table titled "Summary of Expected Potential Productivity for Biomass and Abundance."

**Beneficial Use Plan Adopted by the ICT**  
**Alternative A**

SITE 19 - 1169 ACRES		EXISTING STANDING CROP		POTENTIAL STANDING CROP		POTENTIAL GAIN / (LOSS)	
SPECIES		MAX - LBS	MIN - LBS	MAX - LBS	MIN - LBS	MAX - LBS	MIN - LBS
FINFISH		0	0	758	29	758	29
PENAID SHRIMP		146	146	225,650	66,877	225,504	66,731
BLUE CRAB		56	56	88,322	9,090	88,266	9,034
BAIT FISH		152	48	24	24	(128)	(24)
GRASS SHRIMP		0	0	54,967	24,879	54,967	24,879
mysids		51	51	3	3	(48)	(48)
SITE 15 - 2055 ACRES							
SPECIES		MAX - LBS	MIN - LBS	MAX	MIN - LBS	MAX - LBS	MIN - LBS
FINFISH		0	0	1,322	52	1,322	52
PENAID SHRIMP		128	128	396,651	117,437	396,523	117,309
BLUE CRAB		99	99	155,261	15,877	155,162	15,778
BAIT FISH		268	85	42	42	(226)	(43)
GRASS SHRIMP		0	0	96,627	43,735	96,627	43,735
mysids		178	178	5	5	(173)	(173)
SITE 3 - 1285 ACRES							
SPECIES		MAX - LBS	MIN - LBS	MAX - LBS	MIN - LBS	MAX - LBS	MIN - LBS
FINFISH		1	1	326	194	325	193
PENAID SHRIMP		39	39	84,739	18,706	84,700	18,667
BLUE CRAB		2,073	13	32,279	8,017	30,206	8,004
BAIT FISH		158	44	3,526	0	3,368	(44)
GRASS SHRIMP		3	3	39,977	24,756	39,974	24,753
mysids		191	191	0	0	(191)	(191)
SITE 20 - 425 ACRES							
SPECIES		MAX - LBS	MIN - LBS	MAX - LBS	MIN - LBS	MAX - LBS	MIN - LBS
FINFISH		0	0	25,487	241	25,487	241
PENAID SHRIMP		11	11	2,419	1,283	2,408	1,272
BLUE CRAB		5	5	3,041	1,526	3,036	1,521
BAIT FISH		84	8	850	55	766	47
GRASS SHRIMP		0	0	10,086	5,544	10,086	5,544
mysids		247	209	85	9	(162)	(200)
SITE 18 - 220 ACRES							
SPECIES		MAX - LBS	MIN - LBS	MAX - LBS	MIN - LBS	MAX - LBS	MIN - LBS
FINFISH		6	6	47	8	41	2
PENAID SHRIMP		96	57	3,908	1,283	3,812	1,226
BLUE CRAB		6	6	13,777	2,922	13,771	2,916
BAIT FISH		317	180	8,091	430	7,774	250
GRASS SHRIMP		0	0	1,772	1,125	1,772	1,125
mysids		62	42	1	1	(61)	(41)
TOTAL - ALTERNATIVE A							
SPECIES		MAX - LBS	MIN - LBS	MAX - LBS	MIN - LBS	MAX - LBS	MIN - LBS
FINFISH		7	7	27,940	524	27,933	517
PENAID SHRIMP		420	381	713,367	205,586	712,947	205,205
BLUE CRAB		2,239	179	292,680	37,432	290,441	37,253
BAIT FISH		979	365	12,533	551	11,554	186
GRASS SHRIMP		3	3	203,429	100,039	203,426	100,036
mysids		729	671	94	18	(635)	(653)

**Beneficial Use Plan Adopted by the ICT  
Alternative A**

SITE 19 - 1169 ACRES	EXISTING STANDING CROP		POTENTIAL STANDING CROP		POTENTIAL GAIN / (LOSS)	
SPECIES	MAX - NO.	MIN - NO.	MAX - NO.	MIN - NO.	MAX - NO.	MIN - NO.
FINFISH	39,746	0	2,539,068	1,122,240	2,499,322	1,122,240
PENAEID SHRIMP	4,953,053	3,675,336	395,389,701	198,032,107	390,436,648	194,356,771
BLUE CRAB	10,321,101	7,338,982	188,678,938	113,948,275	178,357,837	106,609,293
BAIT FISH	3,463,747	1,380,589	464,093	0	(2,999,654)	(1,380,589)
GRASS SHRIMP	79,492	0	1,355,513,950	594,950,860	1,355,434,458	594,950,860
MYSTIDS	102,086,432	39,991,190	7,405,615	1,158,479	(94,680,817)	(38,833,011)
SITE 15 - 2055 ACRES	EXISTING STANDING CROP		POTENTIAL STANDING CROP		POTENTIAL GAIN / (LOSS)	
SPECIES	MAX - NO.	MIN - NO.	MAX - NO.	MIN - NO.	MAX - NO.	MIN - NO.
FINFISH	69,870	0	4,463,460	1,972,800	4,393,590	1,972,800
PENAEID SHRIMP	8,707,035	6,460,920	695,060,595	348,123,165	686,353,560	341,662,245
BLUE CRAB	18,143,595	12,901,290	331,681,110	200,311,125	313,537,515	187,409,835
BAIT FISH	6,088,965	2,426,955	815,835	0	(5,273,130)	(2,426,955)
GRASS SHRIMP	139,740	0	2,382,875,250	1,045,871,700	2,382,735,510	1,045,871,700
MYSTIDS	179,459,040	70,301,550	13,018,425	2,036,505	(166,440,615)	(68,265,045)
SITE 3 - 1285 ACRES	EXISTING STANDING CROP		POTENTIAL STANDING CROP		POTENTIAL GAIN / (LOSS)	
SPECIES	MAX - NO.	MIN - NO.	MAX - NO.	MIN - NO.	MAX - NO.	MIN - NO.
FINFISH	1,116,665	388,070	2,791,020	710,605	1,674,355	322,535
PENAEID SHRIMP	13,970,520	7,207,565	542,034,845	241,333,280	528,064,325	234,125,715
BLUE CRAB	1,843,975	178,615	75,189,205	52,871,325	73,345,230	52,692,710
BAIT FISH	14,918,850	7,947,725	510,145	0	(14,408,705)	(7,947,725)
GRASS SHRIMP	3,468,215	763,290	4,085,781,310	681,551,150	1,082,313,095	680,787,860
MYSTIDS	285,336,820	214,271,180	0	0	(285,336,820)	(214,271,180)
SITE 20 - 425 ACRES	EXISTING STANDING CROP		POTENTIAL STANDING CROP		POTENTIAL GAIN / (LOSS)	
SPECIES	MAX - NO.	MIN - NO.	MAX - NO.	MIN - NO.	MAX - NO.	MIN - NO.
FINFISH	157,675	37,400	2,573,375	1,231,650	2,415,700	1,194,250
PENAEID SHRIMP	1,500,675	588,625	22,841,200	12,895,350	21,340,525	12,306,725
BLUE CRAB	515,100	153,850	29,476,725	13,870,300	28,961,625	13,716,450
BAIT FISH	125,375	5,100	2,747,200	561,850	2,621,825	556,750
GRASS SHRIMP	71,400	19,975	363,094,500	241,616,325	363,023,100	241,596,350
MYSTIDS	344,727,275	273,629,875	109,881,200	17,413,100	(234,846,075)	(256,216,775)
SITE 18 - 220 ACRES	EXISTING STANDING CROP		POTENTIAL STANDING CROP		POTENTIAL GAIN / (LOSS)	
SPECIES	MAX - NO.	MIN - NO.	MAX - NO.	MIN - NO.	MAX - NO.	MIN - NO.
FINFISH	53,900	18,260	408,320	105,600	354,420	87,340
PENAEID SHRIMP	1,760,220	1,377,200	36,535,840	24,271,060	34,775,620	22,893,860
BLUE CRAB	881,320	364,760	22,218,240	14,522,640	21,336,920	14,157,880
BAIT FISH	6,486,920	6,486,920	1,741,300	645,700	(4,745,620)	(5,841,220)
GRASS SHRIMP	0	0	25,096,500	15,583,920	25,096,500	15,583,920
MYSTIDS	85,441,180	56,137,400	3,542,220	487,080	(81,898,960)	(55,650,320)
TOTAL - ALTERNATIVE A	EXISTING STANDING CROP		POTENTIAL STANDING CROP		POTENTIAL GAIN / (LOSS)	
SPECIES	MAX - NO.	MIN - NO.	MAX - NO.	MIN - NO.	MAX - NO.	MIN - NO.
FINFISH	1,437,856	443,730	12,775,243	5,142,895	11,337,387	4,699,165
PENAEID SHRIMP	30,891,503	19,309,646	1,691,862,181	824,654,962	1,660,970,670	805,345,316
BLUE CRAB	31,705,091	20,937,497	647,244,218	395,523,665	615,539,127	374,586,168
BAIT FISH	31,083,857	18,247,289	6,278,573	1,207,550	(24,805,284)	(17,039,739)
GRASS SHRIMP	3,758,847	783,265	5,212,361,510	2,579,573,955	5,208,602,663	2,578,790,690
MYSTIDS	997,050,747	654,331,495	133,847,460	21,095,164	(863,203,287)	(633,236,331)

## Alternative B

SITE 2 - 1,373 ACRES		EXISTING STANDING CROP		POTENTIAL STANDING CROP		POTENTIAL GAIN / (LOSS)	
SPECIES		MAX - LBS.	MIN - LBS.	MAX - LBS.	MIN - LBS.	MAX - LBS.	MIN - LBS.
FINFISH	1	1		82,340	779	82,339	778
PENAEID SHRIMP	36	36		7,813	4,145	7,777	4,109
BLUE CRAB	16	16		9,824	4,933	9,808	4,917
BAIT FISH	271	27		2,746	178	2,475	151
GRASS SHRIMP	0	0		32,583	17,909	32,583	17,909
MYSTIDS	798	676		275	30	(523)	(646)
SITE 15 - 2055 ACRES							
SPECIES		MAX - LBS.	MIN - LBS.	MAX	MIN - LBS.	MAX - LBS.	MIN - LBS.
FINFISH	0	0		1,322	52	1,322	52
PENAEID SHRIMP	128	128		396,651	117,437	396,523	117,309
BLUE CRAB	99	99		155,261	15,877	155,162	15,778
BAIT FISH	268	85		42	42	(226)	(43)
GRASS SHRIMP	0	0		96,627	43,735	96,627	43,735
MYSTIDS	178	178		5	5	(173)	(173)
SITE 10 - 910 ACRES							
SPECIES		MAX - LBS.	MIN - LBS.	MAX - LBS.	MIN - LBS.	MAX - LBS.	MIN - LBS.
FINFISH	0	0		590	23	590	23
PENAEID SHRIMP	57	57		175,653	52,060	175,596	52,003
BLUE CRAB	44	44		68,753	26,691	68,709	26,647
BAIT FISH	118	38		19	19	(99)	(19)
GRASS SHRIMP	0	0		42,789	19,367	42,789	19,367
MYSTIDS	39	39		2	2	(37)	(37)
SITE 1 - 50 ACRES							
SPECIES		MAX - LBS.	MIN - LBS.	MAX - LBS.	MIN - LBS.	MAX - LBS.	MIN - LBS.
FINFISH	0	0		2,998	28	2,998	28
PENAEID SHRIMP	1	1		284	151	283	150
BLUE CRAB	0	0		358	180	358	180
BAIT FISH	10	1		100	6	90	5
GRASS SHRIMP	0	0		1,186	652	1,186	652
MYSTIDS	29	25		10	1	(19)	(24)
SITE 18 - 220 ACRES							
SPECIES		MAX - LBS.	MIN - LBS.	MAX - LBS.	MIN - LBS.	MAX - LBS.	MIN - LBS.
FINFISH	6	6		47	8	41	2
PENAEID SHRIMP	96	57		3,908	1,283	3,812	1,226
BLUE CRAB	6	6		13,777	2,922	13,771	2,916
BAIT FISH	317	180		8,091	430	7,774	250
GRASS SHRIMP	0	0		1,772	1,125	1,772	1,125
MYSTIDS	62	42		1	1	(61)	(41)
TOTAL - ALTERNATIVE B							
SPECIES		MAX - LBS.	MIN - LBS.	MAX - LBS.	MIN - LBS.	MAX - LBS.	MIN - LBS.
FINFISH	7	7		87,297	890	87,290	883
PENAEID SHRIMP	318	279		584,306	175,076	583,991	174,797
BLUE CRAB	165	165		247,973	50,603	247,808	50,438
BAIT FISH	974	330		11,256	849	10,282	S19
GRASS SHRIMP	0	0		174,957	82,788	174,957	82,788
MYSTIDS	1,106	960		293	39	(813)	(921)

## Alternative B

SITE 2 - 1,373 ACRES		EXISTING STANDING CROP		POTENTIAL STANDING CROP		POTENTIAL GAIN / (LOSS)	
SPECIES		MAX - NO	MIN - NO	MAX - NO.	MIN - NO.	MAX - NO.	MIN - NO.
FINFISH		509,383	120,824	8,313,515	3,978,954	7,804,132	3,858,130
PENAEID SHRIMP		4,848,063	1,901,605	73,790,512	41,659,566	68,942,449	39,757,961
BLUE CRAB		1,664,076	497,026	95,227,161	44,809,228	93,563,085	44,312,202
BAIT FISH		405,035	16,476	8,875,072	1,815,106	8,470,037	1,798,630
GRASS SHRIMP		230,664	64,531	1,173,008,820	780,562,857	1,172,778,156	780,498,326
MYSIDS		1,113,671,879	883,985,455	354,980,912	56,254,556	(758,690,967)	(827,730,899)
SITE 15 - 2055 ACRES							
SPECIES		MAX - NO	MIN - NO.	MAX - NO.	MIN - NO.	MAX - NO.	MIN - NO.
FINFISH		69,870	0	4,463,460	1,972,800	4,393,590	1,972,800
PENAEID SHRIMP		8,707,035	6,460,920	695,060,595	348,123,165	686,353,560	341,662,245
BLUE CRAB		18,143,595	12,901,290	331,681,110	200,311,125	313,537,515	187,409,835
BAIT FISH		6,088,965	2,426,955	815,835	0	(5,273,130)	(2,426,955)
GRASS SHRIMP		139,740	0	2,382,875,250	1,045,871,700	2,382,735,510	1,045,871,700
MYSIDS		179,459,040	70,301,550	13,018,425	2,036,505	(166,440,615)	(68,265,045)
SITE 10 - 910 ACRES							
SPECIES		MAX - NO	MIN - NO.	MAX - NO.	MIN - NO.	MAX - NO.	MIN - NO.
FINFISH		30,940	0	1,976,520	873,600	1,945,580	873,600
PENAEID SHRIMP		3,855,670	2,861,040	307,788,390	154,156,730	303,932,720	151,295,690
BLUE CRAB		8,034,390	5,712,980	146,875,820	88,702,250	138,841,430	82,989,270
BAIT FISH		2,696,330	1,074,710	361,270	0	(2,335,060)	(1,074,710)
GRASS SHRIMP		61,880	0	1,055,190,500	463,135,400	1,055,128,620	463,135,400
MYSIDS		79,468,480	31,131,100	5,764,850	901,810	(73,703,630)	(30,229,290)
SITE 1 - 50 ACRES							
SPECIES		MAX - NO	MIN - NO.	MAX - NO.	MIN - NO.	MAX - NO.	MIN - NO.
FINFISH		18,550	4,400	302,750	144,900	284,200	140,500
PENAEID SHRIMP		176,550	69,250	2,687,200	1,517,100	2,510,650	1,447,850
BLUE CRAB		60,600	18,100	3,467,850	1,631,800	3,407,250	1,613,700
BAIT FISH		14,750	600	323,200	66,100	308,450	65,500
GRASS SHRIMP		8,400	2,350	42,717,000	28,425,450	42,708,600	28,423,100
MYSIDS		40,556,150	32,191,750	12,927,200	2,048,600	(27,628,950)	(30,143,150)
SITE 18 - 220 ACRES							
SPECIES		MAX - NO	MIN - NO.	MAX - NO.	MIN - NO.	MAX - NO.	MIN - NO.
FINFISH		53,900	18,260	408,320	105,600	354,420	87,340
PENAEID SHRIMP		1,760,220	1,377,200	36,535,840	24,271,040	34,775,620	22,893,860
BLUE CRAB		881,320	364,760	22,218,240	14,522,640	21,336,920	14,157,880
BAIT FISH		6,486,920	6,486,920	1,741,300	645,700	(4,745,620)	(5,841,220)
GRASS SHRIMP		0	0	25,096,500	15,583,920	25,096,500	15,583,920
MYSIDS		85,441,180	56,137,400	3,542,220	487,080	(81,898,960)	(55,650,320)
TOTAL - ALTERNATIVE B							
SPECIES		MAX - NO.	MIN - NO.	MAX - NO.	MIN - NO.	MAX - NO.	MIN - NO.
FINFISH		682,643	143,484	15,464,565	7,075,854	14,781,922	6,932,270
PENAEID SHRIMP		19,347,538	12,670,015	1,115,862,537	569,727,621	1,096,514,999	557,057,606
BLUE CRAB		28,783,981	19,494,156	599,470,181	349,977,043	570,686,200	330,482,887
BAIT FISH		15,692,000	10,005,661	12,116,677	2,526,906	(3,575,323)	(7,478,755)
GRASS SHRIMP		440,684	66,881	4,678,888,070	2,333,579,327	4,678,447,386	2,333,512,446
MYSIDS		1,498,596,729	1,073,747,255	390,233,607	61,728,551	(1,108,363,122)	(1,012,018,704)

## Alternative C

SITE 19 - 1169 ACRES		EXISTING STANDING CROP		POTENTIAL STANDING CROP		POTENTIAL GAIN / (LOSS)	
SPECIES		MAX - LBS	MIN - LBS	MAX - LBS	MIN - LBS	MAX - LBS	MIN - LBS
FINFISH		0	0	758	29	758	29
PENAEID SHRIMP	146	146	225,650	66,877	225,504	66,731	
BLUE CRAB	56	56	68,322	9,090	88,266	9,034	
BAIT FISH	152	48	24	24	(128)	(24)	
GRASS SHRIMP	0	0	54,967	24,879	54,967	24,879	
MYSIDS	51	51	3	3	(48)	(48)	
SITE 15 - 2055 ACRES							
SPECIES		MAX - LBS	MIN - LBS	MAX	MIN - LBS	MAX - LBS	MIN - LBS
FINFISH		0	0	1,322	52	1,322	52
PENAEID SHRIMP	128	128	396,651	117,437	396,523	117,309	
BLUE CRAB	99	99	155,261	15,877	155,162	15,778	
BAIT FISH	268	85	42	42	(226)	(43)	
GRASS SHRIMP	0	0	96,627	43,735	96,627	43,735	
MYSIDS	178	178	5	5	(173)	(173)	
SITE 3 - 1,710							
SPECIES		MAX - LBS	MIN - LBS	MAX - LBS	MIN - LBS	MAX - LBS	MIN - LBS
FINFISH		1	1	433	129	432	128
PENAEID SHRIMP	52	52	112,765	24,893	112,713	24,841	
BLUE CRAB	2,759	18	42,955	10,669	40,196	10,651	
BAIT FISH	211	59	4,693	0	4,482	(59)	
GRASS SHRIMP	4	4	44,404	32,944	44,400	32,940	
MYSIDS	255	255	0	0	(255)	(255)	
SITE 18 - 220 ACRES							
SPECIES		MAX - LBS	MIN - LBS	MAX - LBS	MIN - LBS	MAX - LBS	MIN - LBS
FINFISH		6	6	47	8	41	2
PENAEID SHRIMP	96	57	3,908	1,283	3,812	1,226	
BLUE CRAB	6	6	13,777	2,922	13,771	2,916	
BAIT FISH	317	180	8,091	430	7,774	250	
GRASS SHRIMP	0	0	1,772	1,125	1,772	1,125	
MYSIDS	62	42	1	1	(61)	(41)	
TOTAL - ALTERNATIVE C							
SPECIES		MAX - LBS	MIN - LBS	MAX - LBS	MIN - LBS	MAX - LBS	MIN - LBS
FINFISH		7	7	2,560	218	2,553	211
PENAEID SHRIMP	422	383	738,974	210,490	738,552	210,107	
BLUE CRAB	2,920	179	300,315	38,553	297,395	38,379	
BAIT FISH	948	372	12,850	496	11,902	124	
GRASS SHRIMP	4	4	197,770	102,683	197,766	102,679	
MYSIDS	546	526	9	9	(537)	(517)	

## Alternative C

SITE 19 - 1169 ACRES		EXISTING STANDING CROP		POTENTIAL STANDING CROP		POTENTIAL GAIN / (LOSS)	
SPECIES		MAX - NO.	MIN - NO.	MAX - NO.	MIN - NO.	MAX - NO.	MIN - NO.
FINFISH		39,746	0	2,539,068	1,122,240	2,499,322	1,122,240
PENAEID SHRIMP		4,953,053	3,675,336	395,389,701	198,032,107	390,436,648	194,356,771
BLUE CRAB		10,321,101	7,338,982	188,678,938	113,948,275	178,357,837	106,609,293
BAIT FISH		3,463,747	1,380,589	464,093	0	(2,999,654)	(1,380,589)
GRASS SHRIMP		79,492	0	1,355,513,950	594,950,860	1,355,434,458	594,950,860
MYSIDS		102,086,432	39,991,490	7,405,615	1,158,479	(94,680,817)	(38,833,011)
SITE 15 - 2055 ACRES							
SPECIES		MAX - NO.	MIN - NO.	MAX - NO.	MIN - NO.	MAX - NO.	MIN - NO.
FINFISH		69,870	0	4,463,460	1,972,800	4,393,590	1,972,800
PENAEID SHRIMP		8,707,035	6,460,920	695,060,595	348,123,165	686,353,560	341,662,245
BLUE CRAB		18,143,595	12,901,290	331,681,110	200,311,125	313,537,515	187,409,835
BAIT FISH		6,088,965	2,426,955	815,835	0	(5,273,130)	(2,426,955)
GRASS SHRIMP		139,740	0	2,382,875,250	1,045,871,700	2,382,275,510	1,045,871,700
MYSIDS		179,459,040	70,301,550	13,018,425	2,036,505	(166,440,615)	(68,265,045)
SITE 3 - 1,710							
SPECIES		MAX - NO.	MIN - NO.	MAX - NO.	MIN - NO.	MAX - NO.	MIN - NO.
FINFISH		1,485,990	516,420	3,714,120	945,630	2,228,130	429,210
PENAEID SHRIMP		18,591,120	9,591,390	721,307,070	321,151,680	702,715,950	311,560,290
BLUE CRAB		2,453,850	237,690	100,057,230	70,397,950	97,603,380	70,120,260
BAIT FISH		19,853,100	10,576,350	678,870	0	(19,174,230)	(10,576,350)
GRASS SHRIMP		4,615,290	1,015,740	1,444,891,860	906,966,900	1,440,276,570	905,951,160
MYSIDS		379,708,920	285,139,080	0	0	(379,708,920)	(285,139,080)
SITE 18 - 220 ACRES							
SPECIES		MAX - NO.	MIN - NO.	MAX - NO.	MIN - NO.	MAX - NO.	MIN - NO.
FINFISH		53,900	18,260	408,320	105,600	354,420	87,340
PENAEID SHRIMP		1,760,220	1,377,200	36,535,840	24,271,060	34,775,620	22,893,860
BLUE CRAB		881,320	364,760	22,218,240	14,522,640	21,336,920	14,157,880
BAIT FISH		6,486,920	6,486,920	1,741,300	645,700	(4,745,620)	(5,841,220)
GRASS SHRIMP		0	0	25,096,500	15,583,920	25,096,500	15,583,920
MYSIDS		85,441,180	56,137,400	3,542,220	487,080	(81,898,960)	(55,650,320)
TOTAL - ALTERNATIVE C							
SPECIES		MAX - NO.	MIN - NO.	MAX - NO.	MIN - NO.	MAX - NO.	MIN - NO.
FINFISH		1,649,506	534,680	11,124,968	4,146,270	9,475,462	3,611,590
PENAEID SHRIMP		34,011,428	21,104,846	1,848,293,206	891,578,012	1,814,281,778	870,473,166
BLUE CRAB		31,799,866	20,842,722	642,635,518	399,139,990	610,835,652	378,297,268
BAIT FISH		35,892,732	20,870,814	3,700,098	645,700	(32,192,634)	(20,225,114)
GRASS SHRIMP		4,834,522	1,015,740	5,208,377,560	2,563,373,380	5,203,543,038	2,562,357,640
MYSIDS		746,695,572	451,569,520	23,966,260	3,682,064	(722,729,312)	(447,887,456)

Summary of Expected Potential Productivity  
for

**BIOMASS**

<b>TOTAL - ALTERNATIVE A</b>						
SPECIES	MAX - LBS.	MIN - LBS.	MAX - LBS.	MIN - LBS.	MAX - LBS.	MIN - LBS.
FINFISH	7	7	27,940	524	27,933	517
PENAEID SHRIMP	420	381	713,367	205,586	712,947	205,205
' BLUE CRAB	2,239	179	292,680	37,432	290,441	37,253
BAIT FISH	979	365	12,533	551	11,554	186
GRASS SHRIMP	3	3	203,429	100,039	203,426	100,036
mysids	729	671	94	18	(635)	(653)

<b>TOTAL - ALTERNATIVE B</b>						
SPECIES	MAX - LBS.	MIN - LBS.	MAX - LBS.	MIN - LBS.	MAX - LBS.	MIN - LBS.
FINFISH	7	7	87,297	890	87,290	883
PENAEID SHRIMP	318	279	584,309	175,076	583,991	174,797
BLUE CRAB	165	165	247,973	50,603	247,808	50,438
BAIT FISH	974	330	11,256	849	10,282	519
GRASS SHRIMP	0	0	174,957	82,788	174,957	82,788
mysids	1,106	960	293	39	(813)	(921)

<b>TOTAL - ALTERNATIVE C</b>						
SPECIES	MAX - LBS.	MIN - LBS.	MAX - LBS.	MIN - LBS.	MAX - LBS.	MIN - LBS.
FINFISH	7	7	2,560	218	2,553	211
PENAEID SHRIMP	422	383	738,974	210,490	738,552	210,107
BLUE CRAB	2,920	179	300,315	38,558	297,395	38,379
BAIT FISH	948	372	12,850	496	11,902	124
GRASS SHRIMP	4	4	197,770	102,683	197,766	102,679
mysids	546	526	9	9	(537)	(517)

**ABUNDANCE**

<b>TOTAL - ALTERNATIVE A</b>						
SPECIES	MAX - NO.	MIN - NO.	MAX - NO.	MIN - NO.	MAX - NO.	MIN - NO.
FINFISH	1,437,856	443,730	12,775,243	5,142,895	11,337,387	4,699,165
PENAEID SHRIMP	30,891,503	19,209,646	1,691,862,181	824,654,962	1,660,970,678	805,345,316
BLUE CRAB	31,705,091	20,937,497	647,244,218	395,523,665	615,539,127	374,586,168
BAIT FISH	31,083,857	18,247,289	6,278,573	1,207,550	(24,805,284)	(17,039,739)
GRASS SHRIMP	3,758,847	783,265	5,212,361,510	2,579,573,955	5,208,602,663	2,578,790,690
mysids	997,050,747	654,331,495	133,847,460	21,095,164	(863,203,287)	(633,236,331)

<b>TOTAL - ALTERNATIVE B</b>						
SPECIES	MAX - NO.	MIN - NO.	MAX - NO.	MIN - NO.	MAX - NO.	MIN - NO.
FINFISH	682,643	143,484	15,464,465	7,075,454	14,781,922	6,932,370
PENAEID SHRIMP	19,347,538	12,670,015	1,115,862,537	569,727,621	1,096,514,999	557,057,606
BLUE CRAB	28,783,981	19,494,156	599,470,181	349,977,043	570,686,200	330,482,887
BAIT FISH	15,692,000	10,005,661	12,116,677	2,526,906	(3,575,323)	(7,478,755)
GRASS SHRIMP	440,684	66,881	4,678,886,070	2,333,579,327	4,678,447,386	2,333,512,446
mysids	1,498,596,729	1,073,747,255	390,233,607	61,728,551	(1,108,363,122)	(1,012,018,704)

<b>TOTAL - ALTERNATIVE C</b>						
SPECIES	MAX - NO.	MIN - NO.	MAX - NO.	MIN - NO.	MAX - NO.	MIN - NO.
FINFISH	1,649,506	534,680	11,124,968	4,146,270	9,475,462	3,611,590
PENAEID SHRIMP	34,011,428	21,104,846	1,848,293,206	891,578,012	1,814,281,778	870,473,166
BLUE CRAB	31,799,866	20,842,722	642,635,518	399,139,990	610,835,652	378,299,268
BAIT FISH	35,892,732	20,870,814	3,700,098	645,700	(32,192,634)	(20,225,114)
GRASS SHRIMP	4,834,522	1,015,740	5,208,377,560	2,563,373,380	5,203,543,038	2,562,357,640
mysids	746,695,572	451,569,520	23,966,260	3,682,064	(72,729,312)	(447,887,456)

The BUG plan also has taken special notice of other factors in its consideration of the size and location of beneficial use sites. These considerations include oyster reefs, energy development and leasing, pipeline locations, and dredge material characteristics and distribution.

### Oyster Reef Considerations

The BUG utilized TPWD 1979 maps to delineate oyster reef locations within Galveston Bay. To our knowledge, none of the beneficial use sites significantly impact oyster reef areas within Galveston Bay.

### Energy Development and Leasing Considerations

Data obtained from the TGLO were used to determine areas of concern with respect to existing and planned exploration and production. The TGLO is responsible for leasing submerged lands for oil and gas development, and full consideration for needs of existing mineral lease holders and future mineral leasing activities in Galveston Bay must be incorporated into the final design and management / maintenance plan for the BUG sites. The need for provisions regarding mineral access development will be considered in the final design and management plan.

### Pipeline Location Considerations

Maps were developed using data from the TGLO, USACE and private sources to depict the number and location of pipelines that would have to be considered in locating BUG sites. Due to the large number of pipelines crisscrossing the bay, choosing a location to avoid all pipelines and meet other necessary constraints such as productivity, water depths, and foundation conditions proved to be nearly impossible. As with the oil and gas leases, provisions for the maintenance and other needs of pipeline operations will be made in the final design and management / maintenance (M&M) plan for the selected BUG sites.

### Dredge Material Characteristics and Siting Considerations

#### 1. Material Types and Distribution

Subsurface investigations in the form of core borings performed by the USACE were analyzed with respect to dredgeability, pumping, and construction uses. Data from one hundred fifty-seven borings, taken during the years 1962, 1963 and 1972, were used to divide the material into seven categories: very soft and loose silts and clays (weight of rod), soft to medium clays, medium to stiff clays, stiff to hard clays, loose sands, dense sands, and shell. The material types considered suitable for use in constructing confining levees are medium to stiff clays, stiff to hard clays, the sands and shell. The remaining materials consisting of the soft and very soft silts and clays, were considered suitable only as fill material for marsh construction.

The approximate materials distribution along the channel is described as follows (see Figure 3). From Morgan's Point to the south for a distance of 60,000 feet, 20 - 21 MCY, are levee quality material.. The remaining quantity (6 MCY) is soft fill material . The middle reach of the bay section (40,000 feet) consists of approximately 18 MCY of soft clays that are considered suitable for fill purposes only.

The lower reach of the channel from Bolivar Roads to 40,000 feet to the north contains 12 MCY of materials suitable for levee or fill and 1 MCY suitable for fill only. Additional borings and geophysical techniques will be used to refine the quantity calculations during the final design phase.

## 2. Contaminant Considerations

The ICT created a contaminant subcommittee to evaluate dredge material in Galveston Bay for beneficial uses. Currently, the ICT Sediment Contaminant Subcommittee has determined that the dredge material is acceptable for beneficial use from Bolivar Roads to Morgan's Point.

## 3. Pumping Distances

The BUG also considered the pumping distances, equipment requirements, and the effects of transport upon materials. One of the parameters considered was the capabilities of existing dredging equipment in the industry. The dredges considered capable of performing the work are the large hydraulic cutterhead types utilizing booster pumps when necessary. In general, for the stiffer clays, a booster would be required when the pipeline length exceeded three miles, with an additional booster required at five miles. For the softer materials, a booster would be installed in the pipeline when the pumping distance reached five miles. Consideration of the cost of dredging under these scenarios was a parameter in making site location selections. More importantly, the effects of introducing additional slurry water to pump the long distances promotes the breakdown of the heavier materials used for levee construction resulting in higher turbidity levels and a reduction in quantity of useful materials.

### Physical Plan

#### Alternative Plans

Using available data regarding foundation strengths, dredge material characteristics and quantities, location of pipelines, existing and potential drilling areas, oyster reef location information, NMFS productivity study, and public input, the BUG developed three alternative beneficial use plans. These are presented below (see figures 6, 7 and 8 for site locations):

<b>Alternative A</b>	Bolivar Peninsula (Site 3) Dollar Point Marsh (Site 2) East Bay Bird Island (Site 5) Goat Island (Site 18) Cells 14/15/16 Upland and Marsh (Site 15) Cells 10-12 marsh w/boater destination (Site 19) Vingt-et-Une Restoration (Site 11) • Red Fish Island Restoration (Site 8)•
<b>Alternative B</b>	Texas City Dike Marsh (Site 2) Pelican Island Bird Rookery Restoration (Site 1) East Bay Bird Island (Site 5) Trinity Marsh Boater Destination (Site 10) Cells 14/15/16 Upland and Marsh (Site 15) Goat Island (Site 18) Vingt-et-Une Restoration• (Site 11) Red Fish Island Restoration• (Site 8)
<b>Alternative C</b>	Bolivar Peninsula (Site 3) East Bay Bird Island (Site 5) Cells 10-12 marsh w/boater shelter (Site 19) Cells 14/15/16 Upland and Marsh w/boater shelter (Site 15) Goat Island (Site 18) Red Fish Island Restoration• (Site 11) Vingt-et-Une Restoration• (Site 18)

#### Economics of the Alternative Plans

The three plans were compared for costs relative to each other to roughly assess the differences among them. Cost parameters were site preparation, pipeline lengths, number of boosters, material distributions, dredging difficulty and shore protection factors. Based on preliminary construction costs of the three alternative plans, the alternative plans considered were relatively close. The alternative beneficial use plans ranked by preliminary cost are Plan A then C and B.

- *Included in response to public and agencies input.*

### Recommended Plan

#### Sites

After review and discussion of each alternative beneficial use plan (A,B, & C), consideration of the sediment probing study, NMFS study, locations of existing and proposed oil and gas sites, pipelines, oyster reefs, public groups and agencies inputs, and other sources, the BUG recommends Alternative Plan A shown in Figure 6. A brief description of Alternative A is presented below:

#### Alternative A:

- Comprises approximately 6,026 acres emergent (existing 2,326 acres emergent and 5,678 acres footprint of new bay bottom coverage) of which 4,900 acres is new marsh.
- Acreages presented are for the reach from Boggy Bayou to Bolivar Roads. These do not include the restoration of Vingt-et-UNS, Red Fish Island, or Goat Island.
- Does not require any new upland sites.
- Comprises:

<u>Site Name</u>	<u>Site Number</u>	<u>Site Acres</u>	<u>Site Acres</u>	<u>Capacity</u>
		<u>Emergent</u>	<u>Bay Bottom</u> <u>Coverage</u>	<u>(MCY)</u>
Bolivar Marsh	3	1,285	1,427	22.8
Lower Bay Bird Island	5	25	78	1.0
Cell 14/15/16 Marsh	15	2,055	2,230	31.2
Cell 10/11/12 Marsh	19	1,169	1,463	22.8
Dollar Point Marsh	20	<u>425</u>	<u>480</u>	<u>10.6</u>
TOTAL		4,959	5,678	88.4
Cell 14/15/16 Upland	15	1,067	0*	44.4

- No new Bay bottom coverage.

#### BUG Goals vs. Recommended Alternative

In regard to the “common threads” prevalent throughout the public meetings, agency inputs, and other information discussed earlier in this report, the recommended alternative beneficial use plan A addresses those concerns through the benefits offered by the recommended plan presented below:

1. Considers restoration of the Vingt-et-UNS and Red Fish Island in response to public and agencies input;
2. Provides for restoration of Goat Island;
3. Provides for avian habitat through the creation of a bird island and restoration of another (Vingt-et-UNS);

4. Provides shoreline erosion protection;
  5. Minimizes impact to productive habitats within the bay through the placement of beneficial use sites within areas previously disturbed;
  6. Provides boater destinations such as Boliver Marsh (Site 3) and Cell 10/11/12 (Site 19); and
  7. Creates and restores wetland habitat lost to the Bay. \*
- \* Approximately 5000 acres of wetlands (one of the most ecologically productive habitats) are created which will partially restore losses caused by the conversion of wetland to shallow water habitat through erosion, by subsidence, and by other impacts. Loss of wetlands is the number one problem in Galveston Bay according to the Galveston Bay National Estuary Program (GBNEP).

In consideration of the benefits listed previously, the BUG has determined that the selected beneficial use plan A, through the beneficial impacts of the proposed sites, achieves a net positive environmental effect for Galveston Bay and complies with its stated purpose and goals.

#### Economics of the Recommended Plan

Due to the higher cost and the deleterious effects of pumping dredge material long distances, Alternative A is recommended over Alternative C. The inclusion of the Dollar Marsh Point site is the difference between the two plans.

Future maintenance requirements make the diversity of this plan economically superior to the other alternatives, and represents a more efficient use of the new work dredging materials through the use of shortened dredging distances for the lower section of the bay.

#### Conceptual Design

Upon acceptance of the recommended plan, the BUG should then coordinate development of bio-engineering parameters for design of the selected sites with the USACE. These parameters will replicate as nearly as possible the characteristics of productive marshes within the vicinity of the proposed site. Conceptual design drafts for creating a bird island and creating new marsh habitats will utilize the generic criteria listed earlier in this report. Final marsh and bird island design will require bio-engineering criteria development.

### Future Work Tasks

To ensure the successful completion of the recommended disposal plan, thus deriving the potential offered by the proposed sites, activities similar to that provided by the BUG must be continued. Specifically, the BUG recommends it be assigned the responsibility to accomplish the following activities:

1. Develop recommendations for design and provide overview of monitoring, evaluation, and management of the created marsh sites.
2. Develop recommendations for bio-engineering designs for marsh creation and bird islands.
3. Evaluate and monitor future demonstration marsh and artificial reef projects together with any other similar projects currently underway in the Galveston Bay system to obtain information to enhance the design of the beneficial use sites.
4. Complete the BUG's evaluation of, and provide recommendations for, activities related to the use of bay entrance material, and restoration of Vingt-et-Unt and Red Fish Island.
5. Develop recommendations for management and monitoring of the disposal plan, as described in the project documents, believed to be necessary to ensure that the long-term beneficial environmental effects derived from the sites continue throughout the project life.

ATTACHMENTS

**METHODOLOGY FOR CALCULATION OF  
EXPECTED POTENTIAL PRODUCTION (BIOMASS)  
OF  
BENEFICIAL USE SITES**

1. Categories chosen for evaluation included important species (Fish, Penaeid Shrimp, Blue Crab) and prey species (Bait Fish, Mysids, Grass Shrjmp).
2. All reference sites (Bolivar, Houston Point, Atkinson Island, Texas City Dike, and others) in a zone of an alternative site were averaged to obtain ranges of lbs./acre as described below:
  - Data from the NMFS productivity study were converted from grams dry wt/square meter to pounds per acre using the following formula:
$$\text{grams (dry wt)/sq. m} * 8.906 = \text{lbs./acre}$$
  - A range of "expected" potential productivity was established by adding and subtracting one standard error (SE) from the mean value. These values were then used as the minimum (mean - one SE), mean, and maximum (mean + one SE) productivity expected. For minimum values calculated to be less than zero were entered as zero. Fractions were rounded to whole numbers; fractions less than .5 for total site production was rounded to zero.
  - The gain or loss of expected potential productivity for each site was calculated by subtracting open water from marsh values for Min. and Max., total lbs. (total lbs. difference of marsh [potential standing crop] versus open water [existing standing crop]).
  - Gain/Loss of expected potential productivity for each proposed site was calculated for total acreage for Max. and Min. values.
  - Total Potential gain/loss for all sites in a proposed alternative were calculated by summing for each category.

METHODOLOGY FOR CALCULATION OF  
EXPECTED POTENTIAL ABUNDANCE  
OF  
BENEFICIAL USE SITES

1. Categories chosen for evaluation included important species (Fish, Peneaid Shrimp, Blue Crab) and prey species (Bait Fish, Mysids, Grass Shrimp).
2. All reference sites (Bolivar, Houston Point, Atkinson Island, Texas City Dike, and others) in a zone of an alternative site were averaged to obtain ranges of lbs./acre as described below:

- Data from the NMFS productivity study were converted from number /square meter to number/acre using the following formula:

$$\text{number/sq. m} * 4,048.6 \text{ sq. m/acre} = \text{No./acre}$$

- A range of "expected" potential abundance was established by adding and subtracting one standard error (SE) from the mean value. These values were then used as the minimum (mean - one SE), and maximum (mean + one SE) abundance expected. Fractions were rounded to whole numbers; fractions less than 1 and less than .5 for total site production was rounded to zero.
- The gain or loss of expected potential abundance for each site was calculated by subtracting open water from marsh values for Min. and Max., total lbs. (total lbs. difference of marsh [potential standing crop] versus open water [existing standing crop]).
- Gain/Loss of expected potential abundance for each proposed site was calculated for total acreage for a range of Max. and Min. values.
- Total Potential gain/loss in abundance for all sites in a proposed alternative were calculated by summing for each category.

**FIGURE 1**



FIGURE 2

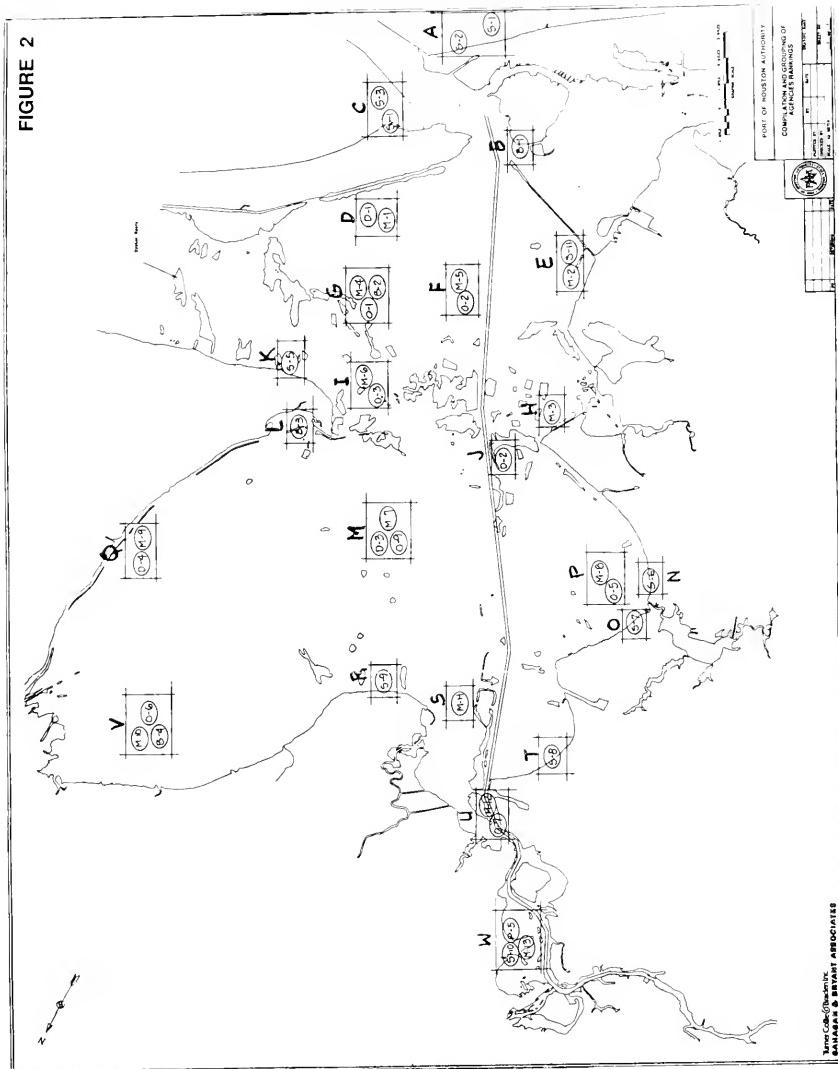


FIGURE 3

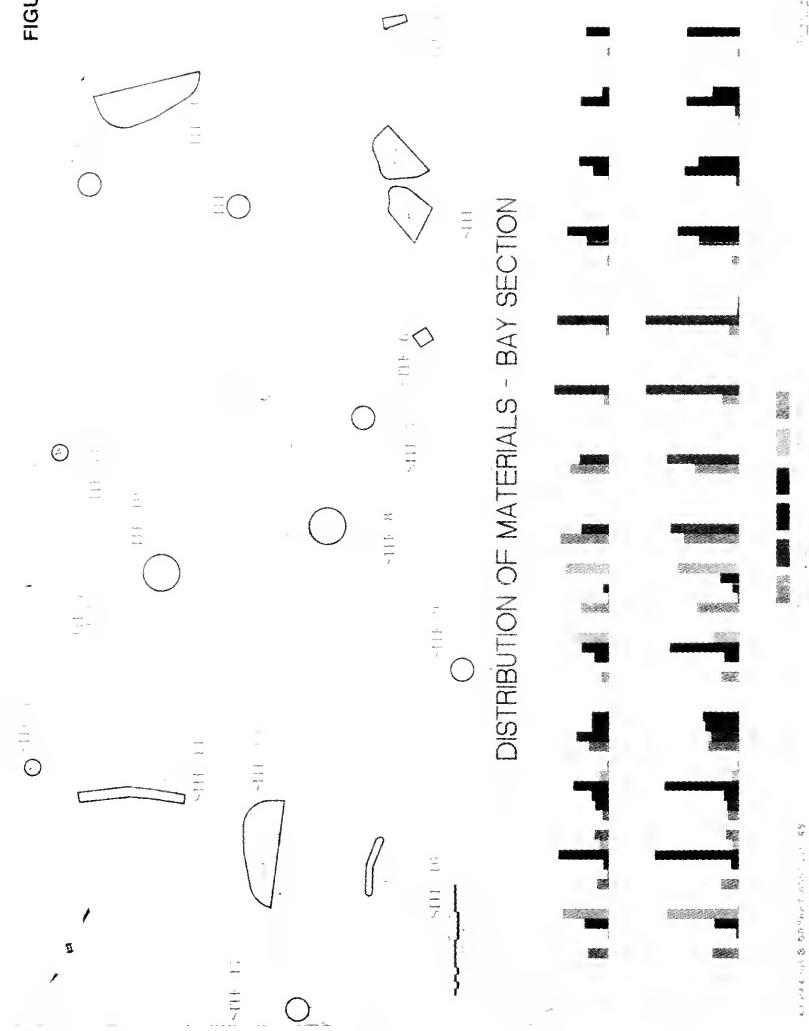


FIGURE 4

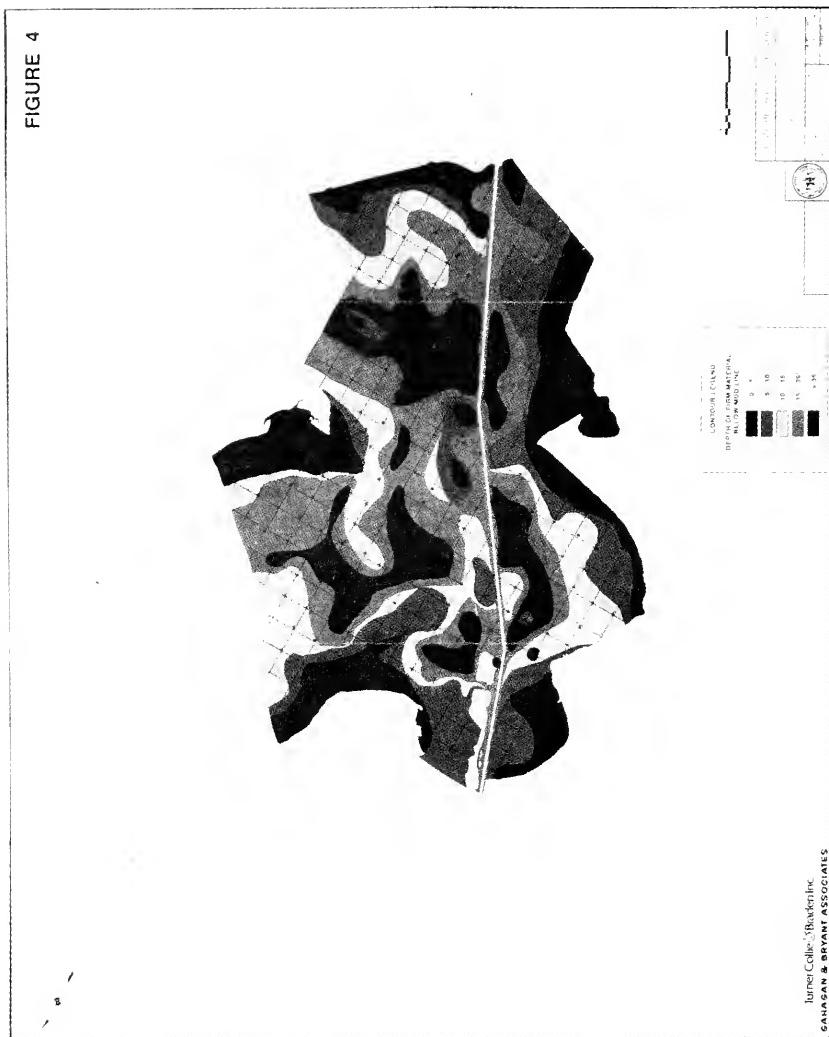
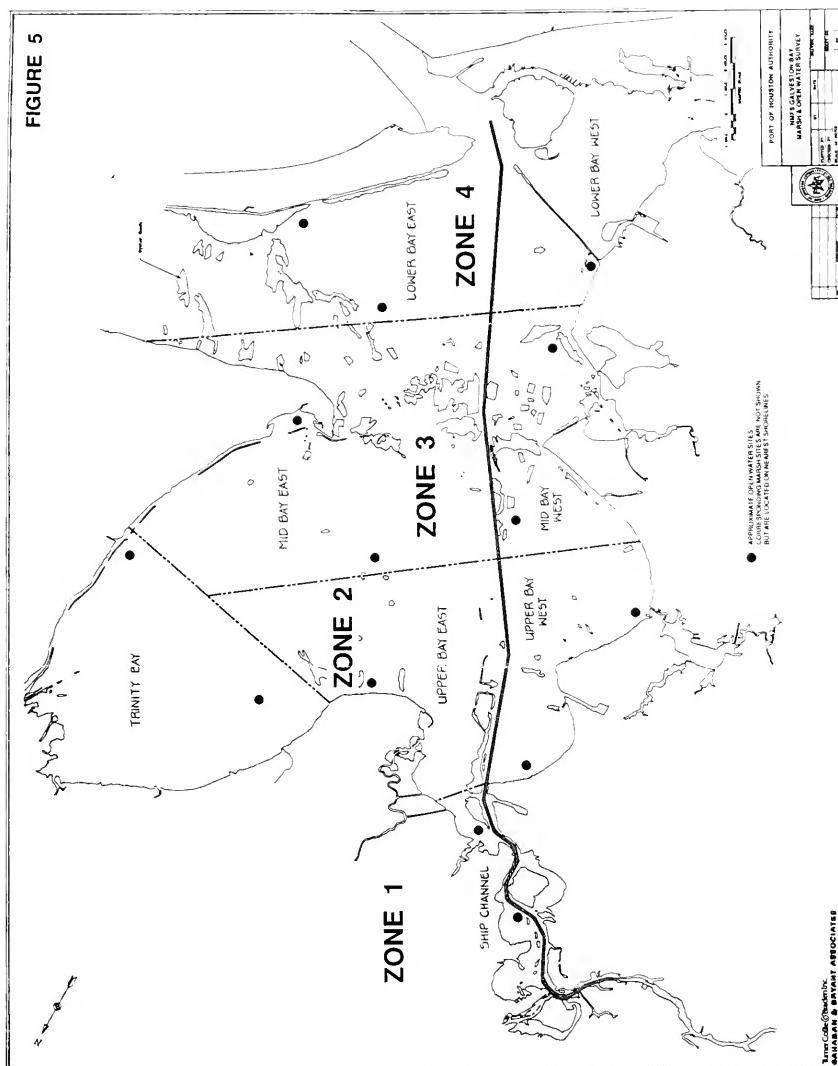


FIGURE 5



**FIGURE 6**  
**APPROVED PLAN**

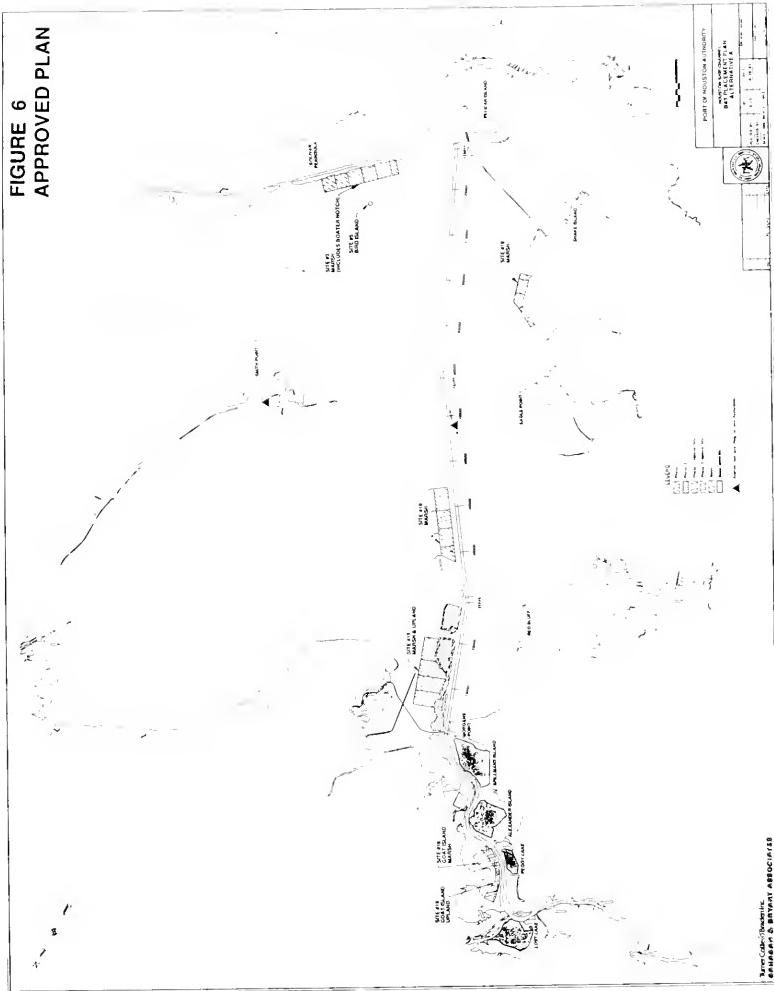
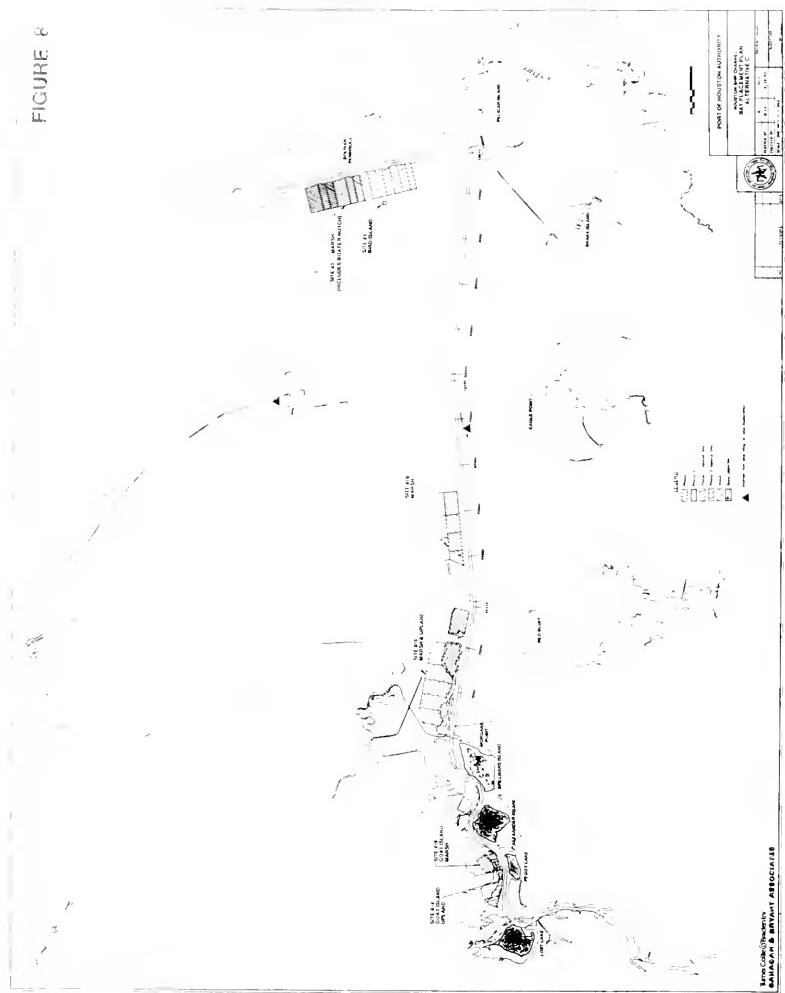


FIGURE 7



FIGURE 8



## ONE HUNDRED THIRD CONGRESS

GERALD F. STUDES MASSACHUSETTS CHAIRMAN  
 WILLIAM J. HUGHES NEW JERSEY JACK FIELDS TEXAS  
 EARL HUTTO FLORIDA DON YOUNG ALASKA  
 WALTER R. JONES LOUISIANA HENRY C. WAXMAN VIRGINIA  
 WILLIAM O. LIPINSKI ILLINOIS JIM SAXTON NEW JERSEY  
 SOLOMON P. ORTIZ TEXAS HOWARD COBLE NORTH CAROLINA  
 THOMAS J. PALONE NEW YORK CHARLES E. GROTH OHIO  
 VERN B. PICKETT VIRGINIA JAMES M. INHOFF ORLANDA  
 ONE BROWN NEW YORK ANTHONY J. PERLICH SOUTH CAROLINA  
 ANN M. PALLONE JR. NEW JERSEY WAYNE T. GILCHRIST MARYLAND  
 GREG LAUGHLIN TEXAS RANDY GUNZ CUNNINGHAM CALIFORNIA  
 JULIA L. MARSHALL WASHINGTON JOHN T. McFADYEN PENNSYLVANIA  
 GENE TAYLOR MISSISSIPPI TILLIE K. FOWLER FLORIDA  
 JACK REED RHODE ISLAND MICHAEL M. CASTLE DELAWARE  
 H. MITCHELL JOHNSON NORTH CAROLINA PETE HOEKZEMA CONNECTICUT  
 THOMAS H. ANDREWS MAINE LINCOLN DIAZ-BALART FLORIDA  
 ELIJAH E. CUMMINGS MARYLAND ROBERT W. KERCHIEN FLORIDA  
 LYNN SCHIFF CALIFORNIA HELEN DELUCH BENTLEY MARYLAND  
 GENE GREEN TEXAS CHARLES H. TAYLOR NORTH CAROLINA  
 ALLAN R. GRANT FLORIDA PETER G. THOMASSEN MASSACHUSETTS  
 DAN HAMBURG CALIFORNIA  
 BLANCHE M. LAMBERT ARKANSAS  
 ANITA B. MCRAE SOUTH CAROLINA  
 THOMAS J. BARLOW III KENTUCKY  
 BRIAN STERK MICHIGAN  
 BENNETT C. THOMPSON MISSISSIPPI  
 MARIA CANTWELL WASHINGTON  
 PETER DEUTSCH FLORIDA  
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 JEFFREY R. PIKE  
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 MINORITY STAFF DIRECTOR  
 HARRY F. BURDOROUGH  
 MINORITY CHIEF COUNSEL  
 CYNTHIA M. WILKINSON

**U.S. House of Representatives**  
**Committee on**  
**Merchant Marine and Fisheries**  
 Room 1334, Longworth House Office Building  
 Washington, DC 20515-6230

December 6, 1993

BACKGROUND MEMORANDUM

TO: Members, Subcommittee on Oceanography, Gulf of Mexico, and the Outer Continental Shelf

FROM: Subcommittee and Committee Staff

RE: December 13, 1993, field hearing in Houston, Texas, on Gulf of Mexico port access issues related to the Ocean Dumping Act and the management and disposal of dredged material

On Monday, December 13, 1993, the Subcommittee on Oceanography, Gulf of Mexico, and the Outer Continental Shelf will convene a field hearing in Houston, Texas, to hear testimony on the current permitting process for the removal and disposal of dredged material, including implications for proposed projects to maintain and improve access to ports in Texas and elsewhere in the Gulf of Mexico region. The Subcommittee will also receive comments on the beneficial use of dredged material for beach restoration and other projects, and improved methods for the management, remediation, and disposal of clean and contaminated sediments. The hearing will take place at 9:00 AM at Galena Park High School, Galena Park, Texas.

Witnesses include representatives of the U.S. Army Corps of Engineers (COE), the Environmental Protection Agency (EPA), the Port of Houston Authority, the Houston Port Terminal Railroad Authority, the Texas General Land Office, the Galveston Bay Foundation and other interested regional parties.

BACKGROUND

Ocean dumping refers to the willful, direct disposal of material at sea. Since the passage of the Ocean Dumping Ban Act in 1988 (Public Law 100-688), the vast majority of waste dumped in U.S. ocean waters is dredged material, a term used to describe sediment removed from waterways to improve navigation. Dredged material is comprised of varying amounts of sand, gravel, silt, clay, organic matter, and chemical compounds such as sulfides. Dredge material can also be contaminated with various metals and organic chemicals and thus require special treatment. However, the COE estimates that only three to five percent of dredge material can be considered seriously contaminated.

The Federal Regulatory Scheme: The Ocean Dumping Act

Although Federal laws restricting dumping in harbor areas were enacted as early as 1886, the current major Federal statute governing ocean dumping of dredge material is the Ocean Dumping Act (ODA, title I of the Marine Protection, Research, and Sanctuaries Act, 33 U.S.C. 1401 et seq.). Under ODA section 103, the COE issues permits for the transportation of dredge material for disposal into U.S. ocean waters.

1. Ocean Dumping Criteria

In general, the COE may issue an ocean dumping permit if the dumping will not "unreasonably degrade or endanger human health, welfare, or amenities, or the marine environment, ecological systems, or economic potentialities". The EPA reviews the permit to ensure that it meets specific EPA criteria including:

- \* the need for the dumping;
- \* the effect of the dumping on humans, fish and wildlife, shorelines, and marine ecosystems;
- \* persistence and permanence of the effects;
- \* effect of dumping particular volumes and concentrations; and
- \* effect on alternative uses of the ocean such as fishing and scientific research.

In addition to these criteria, the COE makes an independent determination of the need for the dumping, based on an evaluation of the potential effect of a permit denial on navigation, economic and industrial development, and foreign and domestic commerce. The COE must also consider alternatives to ocean dumping and, if none exist, appropriate locations for the dumping. The COE is to use "to the maximum extent feasible" existing ocean dumping sites designated by EPA.

2. Ocean Dumping Sites

EPA designates ocean dumping sites under the ODA. Approximately 119 ocean and coastal dumping sites have been designated, although many sites are operating under interim designations pending issuance of an Environmental Impact Statement under the National Environmental Policy Act.

Amendments to the ODA contained in the Water Resources Development Act of 1992 (WRDA) clarified EPA's authority to prohibit dumping at a site, as well as required site management plans at dredge disposal sites, including a schedule for review and revision of the plan at least every ten years. WRDA also prohibits final designation of a site without a site management plan after 1994, and generally bans dumping at a site without final designation after 1996.

State Role In Regulating Ocean Dumping

Until WRDA, States were prohibited from adopting or enforcing any rule or regulation relating to any activity regulated under the ODA. However, States were allowed to suggest criteria to EPA if the dumping affected State waters and could review ocean dumping activities for violations of State water quality standards under section 401 of the Federal Water Pollution Control Act. The application of State authority under the Federal Coastal Zone Management Act (CZMA) to review the proposed dumping activity for consistency with the State coastal zone management plan was unclear, as well as the application of State permitting requirements and environmental review.

WRDA repealed the earlier ODA limitation and greatly strengthened States' review of ocean disposal activities. First, explicit language preserving State rights to "adopt or enforce any requirements regarding dumping of material" in State waters was added, as long as States do not discriminate against out-of-State generated material. This will mean that ocean dumping of dredge material in State waters will be subject to both State and Federal requirements. For ocean dumping activities taking place in Federal waters, presumably the elimination of the earlier restriction would allow States to exercise their CZMA consistency review authority.

State of Texas

Within the State of Texas, the General Land Office manages the State's surface and mineral interests in the coastal lands along the Gulf coast seaward to the three marine-league line. The GLO requires coastal easements for all dredging and dredged material disposal operations requiring the placement of private structures more than 100 feet long or more than 25 feet wide on adjacent state-owned submerged land. Commercial leases are also required for private or corporate use of state-owned submerged land for profit, including dredging projects. These authorizations are separate from a COE federal permit.

Beneficial Use of Dredged Material

Dredged material that is not categorized as contaminated may be suitable for beneficial use projects not directly related to the dredging program. Such beneficial use projects include beach nourishment and restoration, wetland restoration, and bank stabilization. Many port authorities tout this use of dredge material as an additional benefit of a working dredging program.

However, because beach or wetland restoration sites are frequently not in close proximity to dredge sites, it often proves extremely expensive to capitalize on beneficial uses of dredge material. In addition, proposed dredging projects that would make available suitable dredged material may not coincide with specific beneficial use projects. As such, several issues have been raised that may need to be addressed on a Federal or state level, including:

- \* cost-sharing of the additional costs to the dredging project associated with beneficial use
- \* concern that dredging projects will not be approved without a specified beneficial use established
- \* the need for the development of short-term storage measures for such material.

Contaminated Sediments

No quantitative Federal criteria exist to determine when sediments are contaminated enough to require special handling. However, EPA has criteria for five organic pollutants under review and will soon be issuing these regulations for public comment under the Federal Water Pollution Control Act. Promulgation of sediment criteria has been a controversial issue, with environmental groups calling for strict, number-based standards to help control permitting decisions, not only for ocean dumping, but also, for example, industrial discharge permits and to provide clean-up standards for Superfund sites.

However, under even the most stringent views, the vast majority of dredge material poses few disposal problems. Of the 400 million cubic yards of sediment dredged each year from U.S. waterways, the COE estimates three to 12 million cubic yards is contaminated enough to require special handling or treatment.

However, given the presence of contaminated sediments in harbors and navigation channels which must continue to be cleared to allow safe vessel access, the growing number of coastal Superfund sites which involve sediments, public opposition to marine pollution, and scientific advances which allow us to detect smaller and smaller quantities of pollutants, there has been considerable interest in alternative methods to isolate or decontaminate contaminated sediments.

Generally, if ocean dumping of contaminated dredge material

is not environmentally acceptable, there are three options: 1) dispose of the material on land; 2) dump but minimize the environmental impact of the contaminates by capping or otherwise isolating the material; and 3) decontamination to allow conventional disposal or beneficial use of the dredge material.

WRDA directed EPA to conduct a comprehensive national survey of the quality of aquatic sediments. The survey is to include information on the amounts, composition, and location of pollutants in sediments; the sources of sediment pollution; and the locations of contaminated sediments. The survey, along with recommendations for prevention and control of contaminated sediments, is due October 31, 1994. EPA regions IV (Southeastern U.S.) and V (Midwestern U.S.) have completed inventories of sediment contaminant sources and now are working to gather information for an inventory of contaminated sediment sites.

EPA is also charged with overseeing a comprehensive and continuing program of sediment monitoring, including the establishment of a clearinghouse of information on technology, methods, and practices available for the remediation, decontamination, and control of sediment pollution. Biennial reports are due on this work.

#### National Dredging Policy

A number of contentious permitting decisions have taken place in recent months that have heightened concern by port officials, industries, and environmental groups that the current dredge permit process is not working effectively. The Subcommittee held a hearing on March 30, 1993, on the issues related to one of these permits, allowing the New York/New Jersey Port Authority to dispose of dioxin-contaminated sediment dredged from Newark Bay into an Atlantic Ocean dump site. This permit was ultimately approved this summer, after more than three years of delays. Other similar ongoing situations at the Port of Oakland and elsewhere have further highlighted the need for a reassessment of how dredging permits are approved, how contaminated sediments are managed and disposed of, and how beneficial uses of dredged material are to be encouraged and funded.

##### 1) Interagency Working Group on the Dredging Permit Process

On October 28, 1993, at the request of President Clinton, the Maritime Administration (MARAD) within the Department of Transportation, convened an Interagency Working Group on the Dredging Permit Process. Other parties to the interagency group include COE, EPA, the U.S. Fish and Wildlife Service (USFWS), and the National Marine Fisheries Service (NMFS) and the National Ocean Service (NOS) within NOAA.

The Interagency Working group was established to review the permit process and identify ways of improving application coordination, information gathering, criteria review, and the overall sequencing of approvals. The Group will focus on several areas including: the mechanics of how to make the existing system

work better; interagency education and dialogue regarding policies affecting the permit process; and the preparation of mutually agreed-upon handbooks to further coordination among agencies. It has also been decided that the group should focus on all dredging projects whether they require a permit or not, that is, both federal and non-federal projects.

In addition, as part of the process, the interagency group will begin an outreach program in January, 1994, to hear the concerns of affected parties including national organizations and local public interest groups. Following these discussions, the interagency working group hopes to come up with a preliminary draft plan by the end of February or early March. A second round of public outreach will then be conducted for comments, and a final plan is expected to be released in the summer of 1994.

## 2) AAPA National Dredging Policy Proposal

The American Association of Port Authorities (AAPA) has been advocating the adoption of National Dredging Policy by the Federal government. To demonstrate the importance of our ports, both economically and in terms of national security, AAPA points to statistics that 99 percent of U.S. international trade -- nearly one billion tons of cargo annually worth nearly \$500 billion -- moves on ships in and out of U.S. deep draft ports, generating 1.5 million U.S. jobs and contributing \$70 billion to the gross domestic product. U.S. ports also handled two-thirds of the military cargo needed to mobilize, deploy, and resupply U.S. forces during the Persian Gulf War.

In order to preserve effective port operations and sustain these economic development and national security objectives, AAPA has advocated that the federal agencies develop a coordinated, uniform policy to facilitate the approval of dredging projects in a timely and cost effective manner consistent with environmental regulations.

The AAPA is also seeking amendments to the Clean Water Act, ODA, and WRDA to do the following:

- \* provide for the consistent management and disposal of dredged material
- \* establish a federal program to assure the availability of and payment for construction of adequate, environmentally protective dredged material disposal areas
- \* streamline the permitting process by eliminating sequential reviews, establishing timelines for permit review, and clarifying responsibilities of agencies
- \* provide for site-specific general permits for low volume, regular maintenance dredging
- \* provide additional federal funding for the beneficial use of dredged material when it will facilitate the

implementation of commercial navigation projects

- \* require EPA, in consultation with COE, to establish guidelines to address upland disposal and beneficial use for dredged material
- \* encourage beneficial use of dredged material where federal funding is available, and increase funding for research and development of sediment decontamination and management technology

#### Gulf of Mexico Ports and the Dredging Permit Process

The Gulf Coast States are home to eleven of the top twenty U.S. ports in terms of total tonnage, and are home to eleven of the top twenty-five in terms of foreign tonnage. Currently, Gulf ports handle 45 percent of U.S. import-export shipping tonnage, and with the prospect of a North American Free Trade Agreement, this volume is expected to rise significantly. In economic terms, Gulf ports contribute over \$40 billion annually to the U.S. economy and provide almost a half million jobs directly related to port activity.

The Gulf Intracoastal Waterway (GIWW) extends over 400 miles along the Texas coast and connects with waterways throughout the Gulf region and the interior of the United States. The GIWW generates over 20 percent of the gross state product of Texas alone, creating over 147,000 jobs and contributing over \$3.1 billion to the nation's economy.

#### **Port of Houston**

The Port of Houston ranks third amongst U.S. ports in total tonnage and first in the United States in foreign tonnage, moving 67 million tons of foreign tonnage valued at \$24.9 billion in 1991. The Houston Ship Channel currently accommodates nearly 5,000 ships and 30-40,000 barges annually, carrying in excess of 126 million tons of cargo. The Channel, which is currently 40 feet deep, has not been improved since 1966.

The Port's top import commodities by tonnage include petroleum and petroleum products, iron and steel, organic chemicals, crude fertilizers and crude minerals, and natural and manufactured gas. Its top exports include cereals and flour, petroleum and petroleum products, organic chemicals, polymers and plastics, and inorganic chemicals.

The Port of Houston Authority owns and operates five public facilities on the banks of the ship channel: the Turning Basin Terminal, the Bulk Materials Handling Plant, the Fentress Bracewell Barbours Cut Container Terminal, the Bayport Terminal, and the Jacintoport Terminal.

The Port of Houston Authority has proposed a Houston Channel Improvement Project that will widen the existing channel from 400 to 530 feet and deepen it from 40 to 45 feet. The project will

allow the Port of Houston to fully load ships currently calling on the Port, will reduce transportation unit costs, allow the accommodation of larger ships, and allow the Port to effectively compete against other deep draft Gulf ports.

The Port estimates that the improvements should generate 9000 new jobs and \$2.5 billion in local economic impact by the year 2025. The Port also claims that the improvements will enhance port safety and reduce shipping accidents, and thus reduce environmental degradation from such sources as oil spills from ship collisions. In addition, the Port desires to provide the dredged material from the project for beneficial use projects such as the creation of islands and wetlands in Galveston Bay.

In order to facilitate better cooperation and coordination between entities involved or impacted by the proposed project, the Port Authority has created an Interagency Coordination Team for the Houston-Galveston Navigation Channel, Texas Project. The team consists of representatives of COE, EPA, USFWS, NMFS, Texas Parks and Wildlife Department, Texas Water Commission, Texas General Land Office, the Galveston Bay National Estuary Program, and the Ports of Houston and Galveston. The Team has also developed a Beneficial Uses Group to identify and make recommendations on the possible beneficial uses of dredged material from the improvement project.

ISSUES

Some issues that the Members of the Subcommittee might be interested in exploring are:

- 1) Regarding the Houston Ship Channel Improvement Project, how does the Port intend to dispose of the dredged material? Will there be open bay disposal? What options does the Port have for disposal of dredged material if it should prove to be unsuitable for beneficial use?
- 2) What are the costs to the Port and to the Federal government for the Improvement Project and the beneficial use projects? Does the Port feel that these costs are shared in an equitable manner?
- 3) In general, what are the costs associated with performing beneficial use projects with dredged material? Should these costs be shared by the Federal government, State government, interest groups, and/or the general public?
- 4) How can the Federal government encourage the beneficial use of dredged material?
- 5) What are the environmental risks or advantages of using dredged material for beach renourishment or wetland creation?
- 6) It took over three years to have a permit issued for the New York/New Jersey Port Authority dredging project for Newark Bay. What further changes need to be made to the Clean Water Act, the Ocean Dumping Act and Water Resources Development Act to ensure that similar situations do not occur in the future?
- 7) Do the COE and EPA have any indication about where the work of the MARAD Interagency Working Group is heading, and what its recommendations may be? Does the COE and EPA feel that the recommendations and statutory changes proposed by American Association of Port Authorities in its National Dredging Policy Proposal are a reasonable and adequate response?
- 8) What alternatives to the ocean dumping of contaminated dredge materials are being developed? Should additional Federal resources be spent in this area?
- 9) Does the Federal government, in general, have adequate resources to implement its ocean dumping responsibilities as they relate to the disposal of dredge material?
- 10) What role should States play in regulating dredging and the disposal of dredged material?
- 11) What is the status of EPA's development of numeric sediment quality criteria and how will the development of these criteria impact dredge disposal operations and beneficial use projects in the Gulf of Mexico?



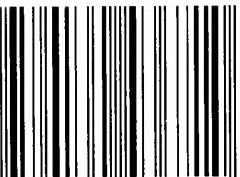
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